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The UNESCO Courier

A WINDOW OPEN ON THE WORLD

UNITED NATIONS EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANIZATION

DECEMBER
1954
(7th year)
Price 25 cents

ON THE FRINGES OF CIVILIZATION

SOUTH PACIFIC MAGIC ARTS

THE SOLDIER WHO WOULDN'T SHOOT

THE WORLD'S HUNGRY READERS

The art of the primitive peoples of the Southwest Pacific is still relatively unknown. Photo shows a carved doorjamb (talé) and sculptured figure from New Caledonia. These architectural carvings (5 ft high by 1 1/2 ft wide) which flank the entrance to the houses symbolize the ancestors and preserve their spirits. Upon the death of the head of the family, the house is destroyed and the carvings, viewed as participating in sorrow, are "killed", i.e. mutilated. Most of the carvings still in existence today are therefore badly damaged. For story on Melanesian art see page 32. (Photo copyright M. Rousseau, Collection Musée de l'Homme, Paris).

The Courier

Vol. VII—No. 7 DECEMBER 1954
Seventh Year

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Published by
The Department of Mass Communication of the United Nations Educational, Scientific and Cultural Organization, United Nations Building, New York 17, N. Y.

Editorial Offices
Unesco, 19, Avenue Kleber, Paris 16, France.

Editor-in-Chief
Sandy Koffler.

Associate Editors
English Edition: Ronald Fenton
French Edition: Alexandre Leventis
Spanish Edition: José De Benito

★

The UNESCO COURIER United States of America edition, printed in the U.S.A., is published monthly by the Department of Mass Communication of the United Nations Educational, Scientific and Cultural Organization, United Nations Building, New York 17, N. Y. and is distributed by the UNESCO Publications Service, 475 Fifth Avenue, New York 17, N. Y., MUrray Hill 3-1093. Annual subscription price is $2.50. Application for entry as second class matter is pending.

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LAST FRONTIERS OF CIVILIZATION

This Indian of the Amazonian jungle is imitating the cry of a she-monkey in order to trap the male. In many parts of the world there are millions of people still living on the frontiers of civilization. What should be done with them? Should we leave them alone, try to assimilate them, or protect them and yet help to preserve their traditional ways? (Photo Dominique Darbois.)

CIVILIZATION today is literally dropping out of the sky on "primitive peoples" (we use this term for want of a better one). With the aeroplane we have now succeeded in breaching the last frontiers which once completely protected aboriginal ways of life.

Up until not so long ago, though, most contacts between our civilization and primitives meant long-drawn-out journeys and were rarely accomplished except by slow progressive stages.

In 1880, Kårl von den Steinen required months of tedious river navigation to reach the tribes of central Brazil. When he did reach them, his discovery was one of the outstanding events in the world of science at the end of the 19th century.

Ever since 1948, these same tribes can be reached within six hours by an airliner leaving downtown Rio de Janeiro and landing at the very threshold of their villages. The first pilots who met these Indians brought home stone axes as souvenirs; today, they fly in illustrated magazines whose circulation seems to have soared among the tribesmen.

This sudden and abrupt contact of the modern world with the frail native cultures is, as a matter of fact, the last act of a drama which has been staged in different settings since the end of the Middle Ages. Until now, nearly every scene has been a cruel one; it is up to us to brighten the final curtain.

The meeting of the white man and the primitive has always followed the same script. It can be summed up in a few lines. First, the romantic idyll of discovery with enchantment and tenderness on one side and, on the other, surprise and curiosity. Then, still under the charm of this first encounter, the primitive becomes an enthusiastic fan for all the novelties spread before him.

But the first disillusions follow as the pioneer begins to exploit land—and the people who had lived on it before him. The decline of the native way of life coincides with a steep drop in population, for new diseases are among the "novelties" of civilization.

Often, just when native traditions are on the verge of disappearing, there is a last wave of revolt. Prophets or messiahs spring up and preach a return to the past or the building of another culture harmonizing old and new for better or worse. These attempts to turn back the clock are usually doomed to failure. They usher in the final annihilation of a culture or resignation to an inevitable fate.

Up until the end of the last century the crushing of primitive peoples in the path of our civilization was accepted as a natural state of affairs. Darwinism served as a legitimate excuse for the extermination of weak, backward tribes. After all, didn't this prove the law of the survival of the fittest?

Frankly, there was no need of scientific theories to put consciences at ease. From the earliest days of European expansion, primitives all too often were placed in the same category as wild animals to be destroyed as if they were vermin or dangerous beasts.

Poorly armed and incapable of putting up a fight, these hapless victims of "civilization" rarely found defenders except among the ranks of missionaries sent out to save their souls and transform their cultures. Unfortunately, the loss of a culture can be as fatal as an epidemic. The Polynesians lost their will to live in the 19th century and as a result their islands were soon sharply depopulated — all because of the mass despair of a people confronted with the collapse of its values.

During the last 50 years, anthropologists and psychologists have done an excellent job of analyzing these contacts between different civilizations or cultural groups. The question is: will we take advantage of their work?

Although the rapid expansion of our modern industrial civili-

LAST FRONTIERS OF CIVILIZATION

(continued)

zation is a potential deadly danger for primitive peoples, the errors of the past are now known. Several governments have awakened to their responsibilities and are now endeavouring to spare their indigenous populations the hard lot of other peoples in the same situation in the past.

A good many scientists and philanthropists sincerely believe that primitives should be placed in a sort of quarantine so that they may be sheltered from the evils which our civilization seems to insist upon bringing them. However, the idea of a "national park for human beings" does not seem feasible.

Whether we like it or not, there is not a single tribe on the face of the earth today which can hope to escape from the effects of our civilization. True, this contact is harmful, but it is the primitives themselves who demand the tools and the knowledge which they believe can make life easier for them. New diseases threaten their health—and only our science can save them.

The problem consists in finding an intelligent way of integrating them into modern life without destroying what is valuable in their way of life and, above all, without destroying their self-respect. Of course, there are some who will ask what is the use of saving people who seem to belong in the dark ages of early man.

The answer is that these primitives number in the millions and that humanity cannot condemn them to death and degradation. Our indifference would not only be a crime, but a foolish policy as well. These men are now being called upon to play an important role in harnessing the resources of their virgin lands. The transition will be a difficult one, but it can be carried off if it is tackled with intelligence and with a deep sense of the innate dignity of man.

What is the nature of Unesco's role in the face of the responsibilities towards primitive peoples which the civilized world must assume? Firstly, it can ease the process of passing from one type of life to another, a transition apparently inevitable. Unesco's long experience in fundamental education can prove invaluable in this respect. And, secondly, these "savages" have the right to preserve their artistic traditions, for the loss of these traditions would be a loss for all of mankind.

Unesco is not blind to this danger. It has already begun to participate in the long task of salvage being undertaken by many scientists, all too aware that this is our last chance.

Alfred Métraux

Dr. ALFRED METRAUX was only 21 when he made his first expedition, an archaeological study in Latin America. Since then, his career as a practising anthropologist has taken him over most of Latin America and the South Sea Islands. He has conducted several missions for Unesco and as a member of Unesco's staff is associated with Unesco's campaign against racial discrimination. Swiss born, Dr. Metraux is now a citizen of the United States. He has written numerous studies on tribes of South America and the Pacific.

Australian official photograph

CIVILIZATION LITERALLY drops out of the blue these days onto the heads of "primitive" peoples—as illustrated by this photograph of an airfield at Tapini in New Guinea, a country entering the air age without ever having passed through the stage of roads and railroads (airplanes are the only practical way of reaching its interior). Last year, an aerial map-making crew discovered a "lost valley" on New Guinea where some 100,000 aborigines whose existence was previously unknown are believed to live. An expedition is scheduled to explore the region, hemmed in by rugged peaks, later this year.

Photos E. Aubert de la rue and Australian official photo

"PRIMITIVE", a bad enough word in itself, does not mean "inferior". These Kanakas (upper photos) in the New Hebrides cope perfectly well with life on Pentecost Island—even if they rub two sticks together to light their fires and make their own axes from stone. The Australian aborigines have also found a way of life well-adapted to their own environment. Science has turned the corner after first regarding "primitive" peoples as unfit for survival—it now recognizes that indiscriminate "improvement" can be disastrous for them if it destroys their traditional values.

WHAT IS A 'PRIMITIVE'?

Tribal dance of the Bapendé in the heart of the Congo. (Photo D.F.F.)

by Claude Levi-Strauss,

THERE was a time when if you spoke about savages everyone had a fairly clear idea what you were talking about. Etymologically, the savage was a man of the forest, and the term denoted those people who lived in close contact with nature. The German word *naturvölker* (nature folk) conveyed this idea directly.

But apart from the fact that all savages do not necessarily live in forests (think of the Eskimos), the word soon took on a figurative meaning which quickly became derogatory. Then too, the idea of living in close contact with nature was also confusing. Peasants live much closer to nature than city dwellers yet both belong to the same civilization

Scientists came to realize that you couldn't classify the people of the world according to how close or how far removed they were from nature. In fact what distinguishes mankind from the animals is that man, with his universal use of language, his fabricated implements and tools, and his submission to customs, creeds and institutions, belongs to a higher order than any living thing in nature. The world of man is a world of culture — that is rigorously and unequivocably opposed to nature whatever the level of civilization. Every human being talks, makes implements and behaves according to set rules whether he lives in a skyscraper or in a thatched hut in the middle of the forest. And it is this that makes him a human being, not the particuliar materials he builds his house out of.

Modern anthropology prefers therefore to use the word primitive to designate the people who used to be called savage. There are an enormous number of primitive societies — several thousand according to a recent estimate. But trouble starts when an effort is made to describe the characteristics of such societies.

First of all, we can discount the factor of numbers, that is the size of the society. Of course, size does have meaning from the global point of view, for societies comprising several million members appear only rarely in the history of mankind and are found only in a few great civilizations. Moreover, these civilizations appeared at different historical epochs and in regions as far apart as the East and Far East, Europe, Central and South America. Yet these are differences so great that the factor of numbers or size can have no absolute value. Some African kingdoms included several hundred thousand persons and oceanic tribes had several thousand members but in the same regions of the world we find societies made up of a few hundred persons or even at times of only a few dozen.

In addition, such peoples (for instance, the Eskimos and some Australian tribes) are often organized in an extraordinarily flexible way : a group is able to expand on festive occasions or during certain periods of the year, so as to include several thousand persons, while at other seasons it splits up into small self-sufficient bands of a few families, or even of single families. Obviously if a society consisting of 40 members and another of 40,000 can both be called primitive for the same reasons, the numerical factor alone doesn't provide an explanation.

We may perhaps be on firmer ground if we consider another feature, undeniably present in every culture we call primitive: each of them is, or was at least until very recently, outside the range of industrial civilization. But

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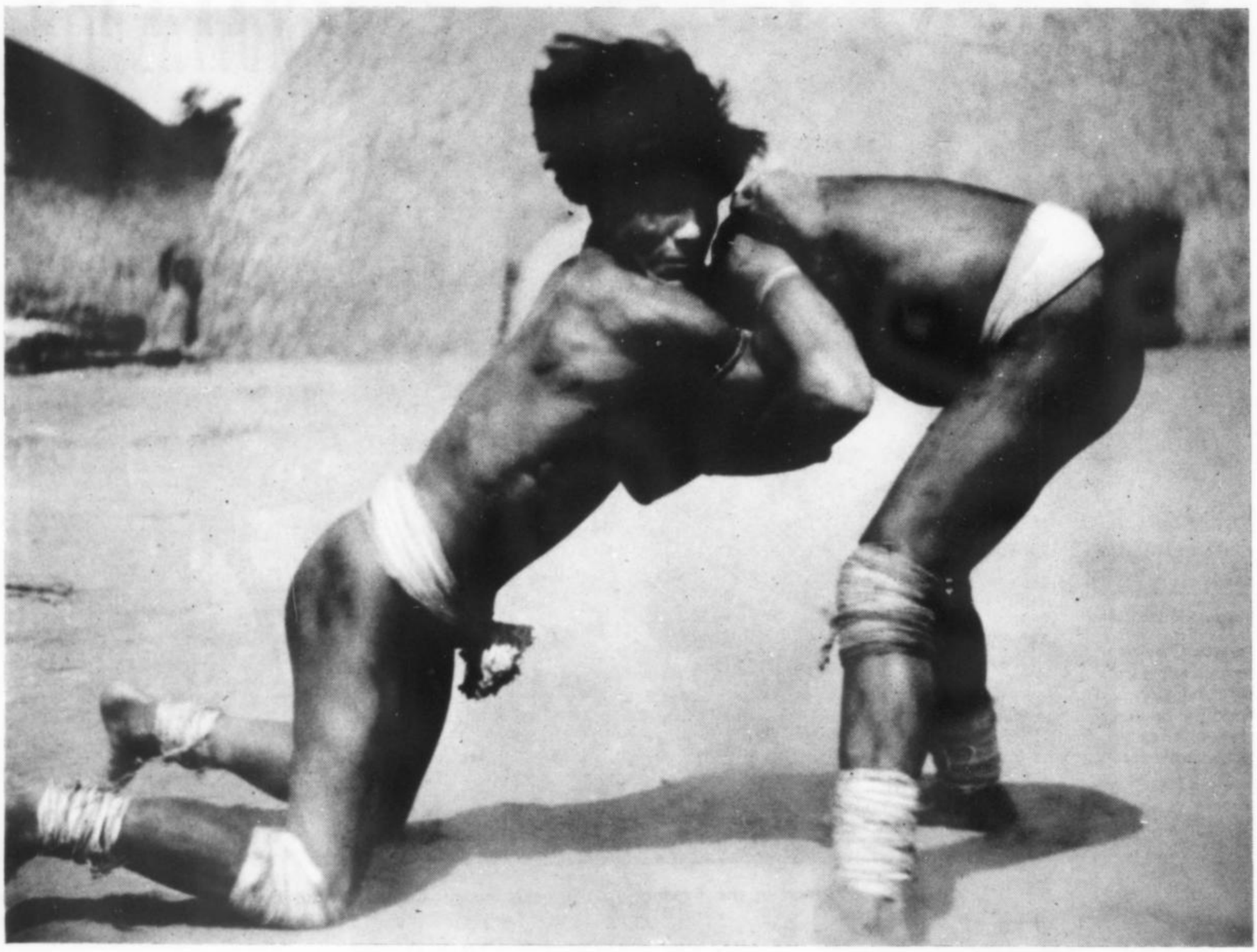
Prof. Claude LEVI-STRAUSS *knows the life of "primitive" civilizations at first-hand, having lived among the Indians of Brazil's Amazon basin. During his long career he has taught at the University of Sao Paulo in Brazil, the Institute of Ethnology in Paris and served as Assistant Director of the Musée de l'Homme in Paris. At present, he is Research Director in the Section of Religious Sciences at the Ecole Pratique des Hautes Etudes and Secretary-General of the International Social Science Council in Paris.*

PEOPLES WITH A FORGOTTEN PAST



HUKA-HUKA is the name these Indians of the Xingu River in Mato Grosso, Brazil, give to their wrestling sport. (Photo S.P.I. Foerthmann.)

here again, the yardstick won't work. Consider the case of Western Europe.

It has often been stated, and rightly, that the way of life of Western Europeans scarcely changed from the beginning of historic times until the invention of the steam-engine ; there was no fundamental difference between the life of a patrician in Imperial Rome and that of a well-to-do Frenchman, Englishman or Dutchman of the 18th century.

Moreover, neither Rome in the second century B.C. nor Amsterdam about 1750 is comparable with a Melanesian village of today, or with Timbuktu in the middle of the 19th century. Civilizations which *preceded* the birth of our industrial civilization shouldn't be confused with those which existed outside it, and would probably have remained *outside* for a very long time if industrialization had not been imposed upon them.

The fact is that when we speak of primitive peoples, we have the factor of history (or time) in mind. The very word primitive implies the idea of a beginning. Then, can we say that primitive peoples are those which have retained or preserved to the present day a way of life that goes back to the beginnings of human society ? This is an attractive hypothesis and it is valid within certain limits. But it is also liable to cause serious confusion.

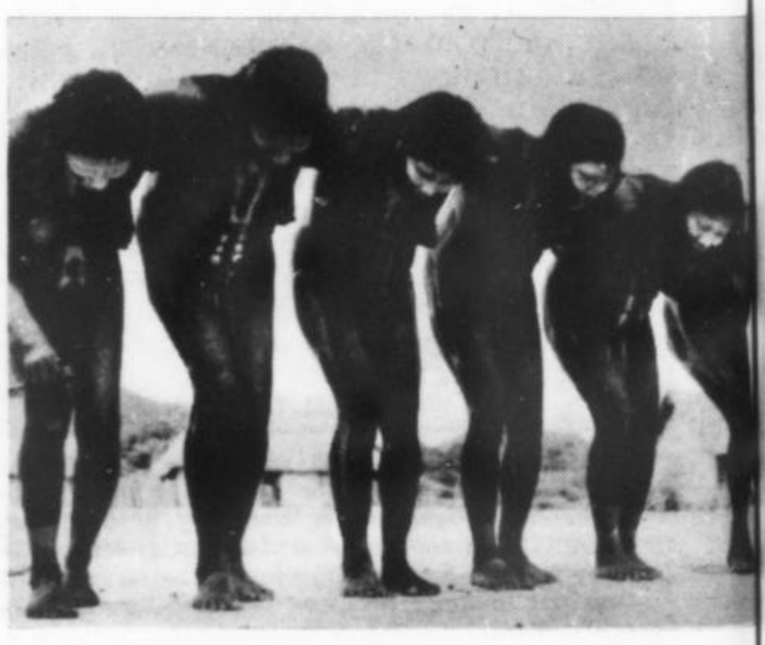
First, we know absolutely nothing about mankind's actual beginnings. The earliest traces we have discovered — arms and implements in chipped stone some thousands of centuries old — are certainly not the very first products of the human brain. They already reveal complicated technical skills which must have developed little by little. And above all, these techniques are found to be the same over vast stretches of the earth's surface, implying therefore that they had time to spread, to influence one another, and to become homogeneous.

A simple matter of relativity

IN the second place, the peoples whom we call primitive are all — or nearly all — familiar with at least some of the arts and techniques that appeared extremely late in the development of civilization. Although the oldest chipped stone implements may date from 400,000 or 500,000 years ago, agriculture, stock-raising, weaving and pottery appeared only about ten thousand years ago, perhaps less. Thus the "primitiveness" of peoples who cultivate gardens, breed pigs, weave loincloths and make cooking-pots is quite relative in the time span of the total duration of human history.

But we can ask another question : after all, don't at least some of these peoples continue to follow a way of life much older than ours, much more like that of man in the earliest ages? At once, some examples come to mind: the aborigines of Australia or of South America. They lead a nomadic life in semi-arid regions, live by hunting, and by picking and gathering from the earth what food they can. They are ignorant of weaving or pottery, and until quite recently used stone implements. The natives of Australia had no knowledge even of the bow and arrow, while those of Tierra del Fuego had only a very rudimentary type.

Nevertheless, the progress of ethnological knowledge provides the explanation. It has shown that in these cases and in all the others that could



Ceremonial dance, Brazil.

be mentioned, the apparently primitive state is not the result of any miraculous preservation of an ancient mode of life, it is the effect of regression. The Australians can only have reached their continent by boat, so they must at some time have known the art of navigation, and since forgotten it.

Men who know nothing of writing

A CHANGE of environment to an area which lacks good quality clay often explains the disappearance of pottery, sometimes even from human memory. Language often proves that peoples whose low level of civilization might suggest their immobilization and isolation in the same place from the most distant times, have in fact been in contact for thousands of years with all kinds of much more highly developed populations. Far from these alleged primitives having no history, it is their history that explains the very special conditions in which they have been found.

For it would be absurd to think that, because we know nothing or almost nothing of their past, primitive peoples have no history. Their remotest ancestors appeared on the earth at the same time as our own. For tens and even hundreds of thousands of years other societies preceded theirs and throughout that time lived, endured and therefore changed as ours did. They knew wars, migrations, periods of want and prosperity. They had great men who left their stamp on technical knowledge, on art, morals and religion. All this past exists; only they know little about it and we know nothing.

The latent presence and pressure of a past that has disappeared are enough to show the falsity of the word primitive, and even of the idea of a primitive people. But at the same time we must take note of a feature which all societies we call primitive have in common and which distinguishes them from ours. It is the reason for applying to them all the same term, however inappropriate it may be.

All these societies — from the powerful empire of the Incas, which succeeded in organizing several million men into a politico-economic system of exceptional efficiency, down to the small nomadic bands of plant-gatherers in Australia— are comparable in at least one respect: they knew or still know nothing of writing.

They could preserve nothing of their past save what human memory was able to retain. This remains true, even for the small number who have, for lack of writing, developed some system of mnemonics (such as the Peruvian knotted strings or the graphic symbols of Easter Island and of certain African tribes). Although these societies are not, strictly speaking, more "primitive" than ours, their past is of a different kind. It could not be a past preserved in writing and thus available at any moment to be used for present advantage.

It was a fluid past which could be preserved only in small quantities, and the remainder, as it came into existence, was condemned to be forgotten with no hope of recovery. To borrow a simile from the language of navigation, societies with some form of writing have a means of logging their course and therefore of keeping on the same track for a long period.

On the other hand, societies without some form of writing are reduced to following an unsteady course which may in the end (although the distance covered is the same in both cases) bring them back very near to their starting point. Or at least it deprived them of the means of systematically drawing away from it, that is to say, of making progress.

Danger of ambiguous expressions

THEREFORE I cannot too strongly warn that readers — and even scientists themselves — should beware of ambiguous terms like savage, primitive, or archaic. By taking the presence or absence of some form of writing as the sole criterion in our study of societies, we shall, in the first place, be invoking an objective quality which implies no philosophic or moral postulate. And at the same time we shall be relying on the only feature capable of explaining the real difference that distinguishes certain societies from our own.

The idea of a *primitive society* is a delusion. On the other hand the idea of a *society with no form of writing* makes us aware of an essential side of mankind's development; it explains the history, and enables us to foresee and perhaps influence the future of these peoples.

(Photos copyright E. Aubert de la Rue, Gusindé. S.P.I.)

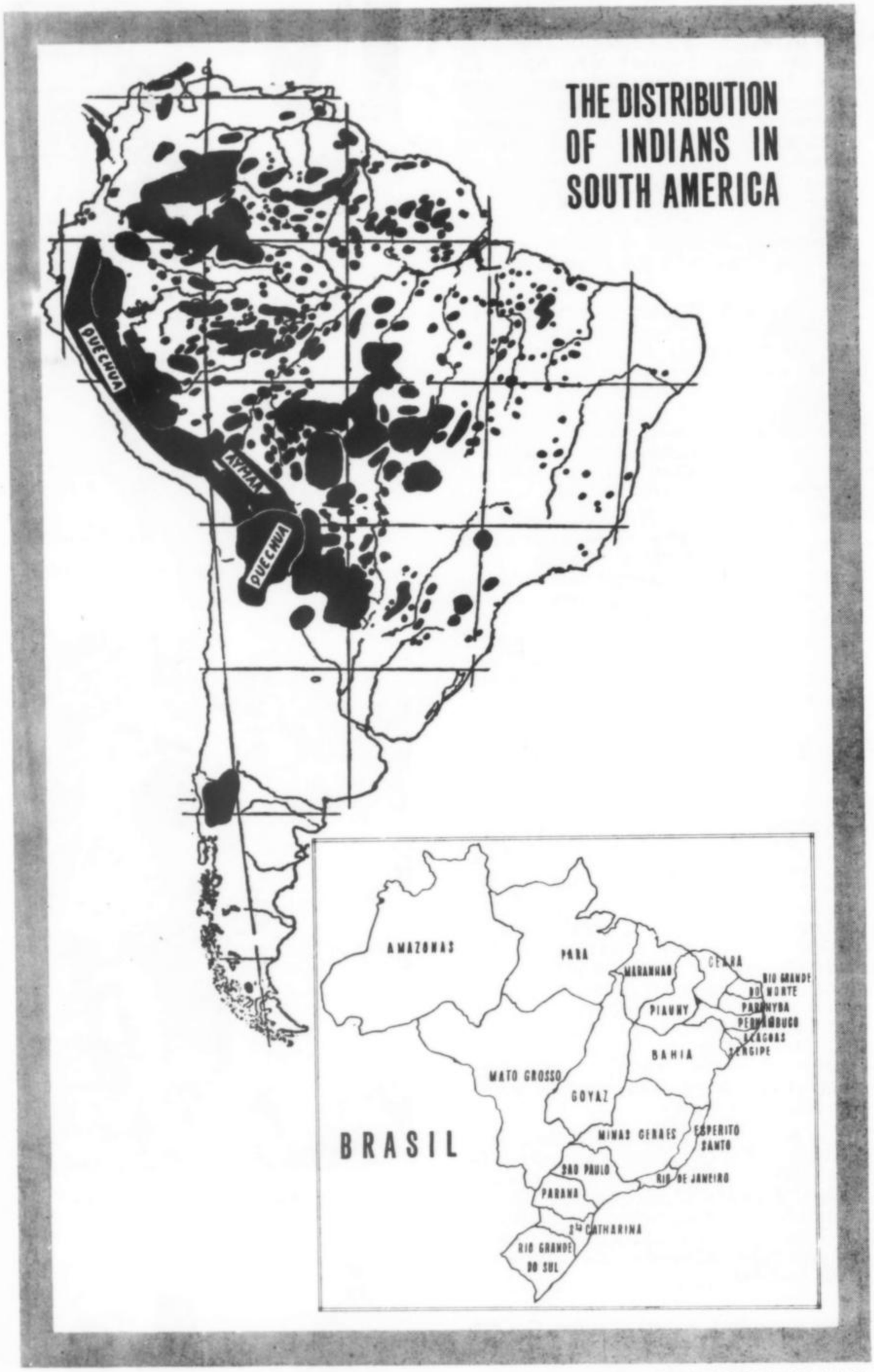
Kakamoeka girls in French Equatorial Africa.

A Fuegian family of Tierra del Fuego.

Masai women in Kenya.

Colorado Indians in Ecuador.

Abron women from the Ivory Coast.



From "Indigenous Peoples" Published By I.L.O.

DISTRIBUTION OF BRAZIL'S INDIAN POPULATION BY STATES

State	Number of Indians	State	Number of Indians
Mato Grosso	500,000	Maranhão, Espírito Santo, Bahia and Minas Gerais	10,000
Acre	300,000	Paraná	10,000
Amazonas	200,000	Santa Catarina	10,000
Pará	100,000	Rio Grande do Sul	2,600
Goiás	100,000	São Paulo	2,170

BRAZIL : GEOGRAPHICAL DISTRIBUTION OF TRIBES

State	Number of tribes	State	Number of tribes
Amazonas and Acre Territory	108	Paraiba	1
Bahia	2	Paraná	1
Goiás	9	Pernambuco	1
Maranhão	10	Rio Grande do Sul	1
Mato Grosso	79	Santa Catarina	1
Minas Gerais	3	São Paulo	3
Pará	22	Espirito Santo	6

General Rondon

BRAZIL is a country where primitive Indian tribes still live next to huge modern metropolises. Brazil is a country of violent contrasts, contrasts arising both from her enormous area and the uneven rate at which regions within this area have been progressively developed.

The Brazilians themselves say that, when you travel in the direction of the setting sun in their country, you journey backwards through time. Sooner or later, you are bound to meet forgotten centuries.

Even today, the Brazil of the prairies and unexplored jungles is only beginning to be integrated into the life of the nation. This Brazil is an ever-moving frontier and it marks the progress which has been made by Brazilian society in what amounts to the conquest of its own territory.

This is a borderland where Indians and the forces of civilization face each other under much the same conditions as those of the first meeting of Europe and America. At times, the clash is even more violent than it was in the past—for it has now been heightened by centuries of bloody conflict.

The Indian who sees an outsider move onto the territory of his tribe is convinced that there is no hope of any agreement. From tradition and personal experience he has learned that he can expect nothing but the worst...

by

Darcy Ribeiro

and that he has no other course but to defend his rights.

The pioneer, opening up new grazing lands or jungle areas, looks upon this soil as his own. He resents the Indian and he is suspicious of him. The attitudes of both sides being what they are, it is no great wonder that a fight is inevitable.

Up to the beginning of the 20th century, Indians who dared to resist an invasion of their territory were hunted down like wild beasts. Vast regions only a few days' journey by horseback from big cities such as Sao Paulo, Vitoria, Ilheus or Blumenau lay untouched because they were battlegrounds for whites and Indians.

Entire tribes were wiped out. Gangs of professional killers hired themselves out to local governments or colonization companies to massacre Indians and make room for European settlers.

The fate of the Indians who lived peacefully in contact with white civilization was no less tragic. They were treated mercilessly and frequently they were thrown off their land if it proved to be of any value. When they could be used in any way as a source of labour, they were ruthlessly exploited, often reduced to slavery and stripped of their most elementary rights. Their women and children were playthings of village tyrants.

But as the advancing frontier pushed

Darcy RIBEIRO, is the director of the Indian Museam in Rio de Janeiro, and a social anthropologist on the staff of the Bureau of Indian Affairs of Brazil. For many years he has had close contact with Indians of the Brazilian jungle and is the duthor of several outstanding studies of their life and customs.

THE SOLDIER WHO WOULDN'T SHOOT

'DIE IF YOU MUST BUT NEVER KILL AN INDIAN'

the Indian further and further away from Brazil's large towns, a new attitude took form in the minds of the distant city-dwellers. The Indian became a romantic figure, resembling one of Rousseau's "good savages" and a flood of poems and novels began to sing his praise.

This, of course, did not stop the frontier settlers from painting him as black as possible so that the great Indian hunt could go on with some sort of justification.

The beginning of the 20th Century saw an increase in world demand for rubber and other tropical jungle products. This led to the invasion of the last of the land where the Indian remained unmolested. New conflicts between whites and Indians sprang up and new massacres followed. But, this time, an aroused public opinion brought pressure to bear on the government to put an end to the slaughter.

It is against this background of violence and murder that the figure of a young soldier first appeared. Soon, the eyes of the entire country were to be on him.

This officer, assigned to build a telegraph line linking the Brazilian coast with the country's western border, had adopted a new policy towards the Indians. He wanted to demonstrate that it was possible to pacify even the most hostile tribes merely by persuasion.

His troops had to push through regions occupied by the most feared Indians of the interior, regions where no white man had ever dared venture. They did go through, systematically winning the Indians' confidence and with never an act of violence.

The man behind this miracle was Candido Mariano da Silva Rondon. He had been a professor of mathematics and astronomy at Brazil's military college until the day, a few years previously, when he decided to find a humanitarian way of using the troops under his command.

Rondon was a "positivist"—for the driving force behind this epic of the Brazilian jungle was the philosophy of the French thinker, Auguste Comte. Putting positivism into practice meant leading an armed expedition through territory occupied by hostile tribes without ever authorizing the use of arms, even under attack... and all of this in the name of an abstract principle of justice.

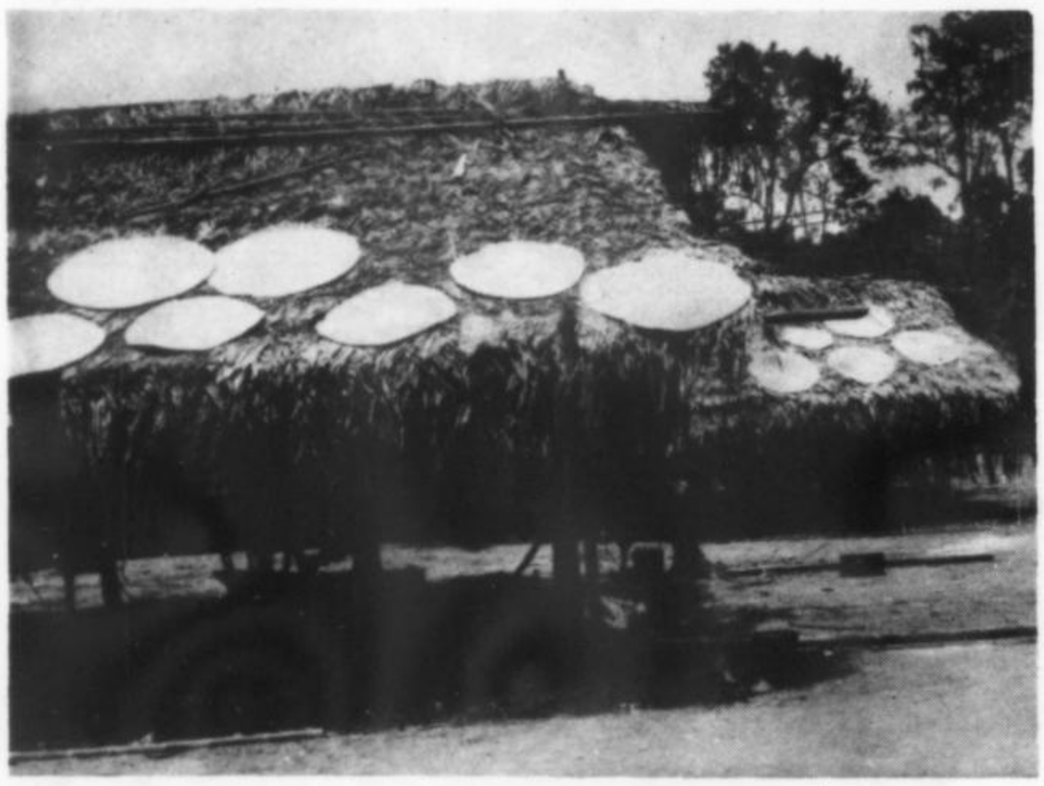
Rondon became the head of a com-

(Continued on page 12)

OYANA INDIANS who live in the border areas between Brazil and the French and Dutch Guianas build circular homes whose frameworks are made from saplings bent over and tied with lianas. Nails and carpentry joints are unknown there. Roofs and walls are made waterproof by an overlapping thatch of palm leaves. In a country as vast as Brazil the type of village house varies according to the region and the state of tribal development.

BASIC FURNITURE in the forest Indian's hut is the hammock whose suitability for sleeping in the tropics led Europeans to adopt it after their first contacts with the Indians, and a low stool or bench often carved in the shape of an animal. Woman in hammock is spinning cotton while her husband makes basket-work fish trap. Basketry is a masculine industry.

FOOD MAINSTAY of Brazilian Indians, as for all others in tropical South America, is manioc, one of a variety of root crops from which many dishes and drinks are prepared. In the cooking pots shown here, for example, manioc is being fermented to produce a strong drink generically called chicha. Before being used for cooking, the commonest kind, bitter manioc, is carefully processed to remove the prussic acid it contains.



SUN OVEN is a hut roof on which the manioc cakes are spread. Well-baked and dried these will keep for a long time. In addition to root crops nearly all tribes grow maize and cultivate many other plants for use as food, drugs or poisons. Certain plants when crushed in streams give out a sap which drugs fish without affecting their edible qualities in any way.

SCANTY CLOTHING worn by dwellers in the heat and humidity of tropical forests is compensated by a profusion of bodily decoration. Beads and rings are worn and body tattooing and painting are widespread. Feather decorations include crowns, frontlets, collars and cloaks. Feather headdress held by this young girl is also decorated with beetles wings.

INDIAN KITCHEN is merely the centre of a roofed, but unenclosed hut. Here the manioc, purged of its poisonous prussic acid and now a starchy whitish powder, is either baked on a clay grid into thin flat cakes or stirred to produce small white crumbs, "farinha" pellets, like those of white bread. Meat or fish which would rapidly spoil in the humid climate are baked and smoke dried.

YOUNG HUNTERS have spotted an Ara, a macaw which though never eaten by Indians, is much prized for the plumes widely used for making ceremonial headdresses. The blowgun and bow are basic hunting weapons and several types of arrow heads are used including barbed for larger game and blunt ones for stunning birds.

MOTIONLESS AS STATUES, TWO INDIANS PATIENTLY WAIT FOR THE FISH.

THIRSTY BOATMAN refreshes himself by letting water run down his paddle into his mouth. He is tattooed (a form of protection against malign influences) but like most Indians has removed all hair from his body, from above the eyes and from his lips and chin. Indians usually explain that they think hair is "ugly", but there is generally some underlying superstition to account for this custom.

ORNAMENTAL DESIGNS of human, animal and linear figures are used by Indians to decorate weapons, implements, vessels, clothes and their bodies. Here, using a twig and a liquid called "genipa" customarily employed for body painting, an Indian girl traces simple rectangular designs on paper supplied by the photographer.

THE WATERWAYS are natural roads in thickly growing tropical forest. Indians show great skill in coping with swift water, rapids and other obstructions. Their craft include simple rafts, often made of very light balsa wood, dugouts and bark canoes.

(Continued from page 9)

mission which set out to apply Comte's ideas to an army. Rondon's plan had three basic points: the peaceful use of troops to survey unknown regions, military construction of public works such as telegraph lines and, finally, the application of humanitarian principles such as the protection of the Indians.

In the cruel history of relations between primitives and civilization, it would be difficult to find a policy bearing such a stamp of generosity. Even the 16th century missionaries who brought the Gospel to the Indians of Brazil did not disdain to use the secular arm. On more than one occasion, they asked the aid of the army. But Rondon was the secular army personified. He was at the head of a conquering army, and he was able to make it an instrument which combined both wisdom and understanding.

His troops marched under his motto: "Die if you must, but never kill."

Twenty years of life in the jungle brought him into contact with many tribes, a good deal of them pacified by his men. These years gave Rondon precious experience in the problem of relations existing between Indians and Brazilians.

Eventually, he succeeded in training a team of men as conscious as he was of the complexity and the importance of Brazil's Indian problem. This school produced the first of the Brazilian "Indianists", men who had learned from Rondon that force should never be used, even to stand off an attack.

Above all, they learned that the most warlike of tribes might very well be peace-loving and willing to fraternize with white men—once they had been convinced that they were not dealing with the usual sort of white men. In other words, the Indians had to be shown that civilization had a face other than the one with which they were all too familiar.

In 1910, when the Brazilian Government yielded to public opinion and decided to create an organization to protect the country's Indians, Rondon was immediately hailed as the best man to set it up. This was the birth of the *Serviço de Proteçao aos Indios*, set up to carry out a realistic demographic policy: the preservation of a population indispensable to Brazil because it was already occupying vast areas of the country. This organization was also entrusted with bringing peace to regions torn by Indian-white conflicts.

It was understood that the service would be devoted exclusively to aiding the Indians and would abstain from any religious proselytizing. The law setting up the service established the principle that the Indians would be respected as a people with the right to be themselves, to preserve their beliefs and to live as they wanted to live—that is, according to the traditions handed down to them by their ancestors.

This service heralded a new era for the Indians of Brazil. No longer were all customs, beliefs and institutions to be reduced to one all-inclusive standard or cast into a foreign mould. The new policy was based on what sociologists term "cultural relativism" In other words, there was a willingness to admit that certain conceptions of the supernatural and certain social customs could fulfil a useful purpose within the framework of a specific society.

Protection of Indians on their own land was another major objective. The service put an end to the old practice of forcing Indians to abandon their

FESTIVAL DRESS of Boro Indian includes feathers driven through the nose and ears and beads through the lower lip.

BRAZIL'S GENERAL RONDON — THE SOLDIER WHO WOULDN'T SHOOT

homes and eke out a miserable existence elsewhere. This method of "civilizing" Indians had been one of the main causes of tribal disorganization. Ripped loose from the surroundings where he had been raised and where he had learned to fight for life, the Indian could not meet his own needs and he had been faced with a choice of fleeing or submitting.

No longer would families be separated under the pretext of education or evangelization. Previously, the removal of children from the homes of their parents had been the cause of spectacular failures and bloody insurrections.

Traditions shattered

THIS practice had been widespread and justified by the hope of transforming new generations of Indians. Unfortunately, it only resulted in depriving Indians of an education which would have enabled them to learn how to meet their own conditions of existence. It also shattered tribal traditions essential to them for survival as a society.

Considering the period of his work, Rondon and the "positivist" policy of his service represented a big step forward—especially in view of the attitude of anthropologists and sociologists of the time. They were mainly interested in describing exotic customs and had little concern for the future of the people they were studying. The Indian was a sort of human fossil enabling them to shed light on the past.

Rondon's Bureau of Indian Affairs was established in Rio de Janeiro, with branches—*Inspetorias*—throughout the country and also a network of "Indian outposts." Each of these outposts represented a territory belonging to an Indian tribe which was assisted by government officials.

These officials were given the task of organizing Indian economic life, protecting the Indians from famine and, in general, raising their standard of living. In addition, government representatives were in charge of relations between their Indian community and the whites to prevent exploitation and to punish crimes which had been committed against the tribe.

If necessary, officials were empowered to intervene in quarrels among Indians—but only if the Indians had recourse to their authority after failing to settle the disputes under their own traditional system of justice.

106 outposts

FINALLY, Indians were given medical aid, mainly to protect them against diseases transmitted by white men. In short, outpost officials had the job of directing the entire process of assimilation of the Indian to avoid violent change which might harm his traditional way of life.

Sudden change often proves to be harmful when a primitive people cannot meet a new situation with its traditional ways of life—and when it has not yet been convinced that there are any valid reasons for changing the way of life it has always known.

Today, thousands of Indians live under the protection of 106 "outposts". Many of them would not have survived without Rondon's service assuring them possession of their land and the right to live according to their customs.

The service has always faced another problem—the pacification of hostile tribes. It has devoted itself to this task for forty years while Brazil has pushed back her frontier. The men who followed Rondon continued to use only persuasion and several of them paid with their lives for the faith they showed in the motto : "Die if you must, but never kill."

HUNTING PARTY of Oyampi Indians who inhabit the frontier lands of Brazil and French Guiana, returns to its village. In some tribes canoe hunters use a calabash to imitate the roar of the jaguar. Attracted by the call, the jaguar swims out to the canoe where it can easily be stunned with a club.

This policy has proved profitable for Brazil as well as for the Indians. Huge regions have been settled peacefully and integrated into the national economy. The service has no secret of success—other than the patience and the spirit of sacrifice which Rondon was able to awaken.

But what can be done with Indian tribes once they have been pacified? How can they be saved from the harmful influence of everyday contact with their onetime traditional enemies?

The loss of part of their territory is a hard economic blow to Indian tribes dependent for survival upon hunting or upon plants growing wild. To make matters worse, they are killed off by epidemics of influenza or measles and the high mortality rate destroys their social structure and shatters their traditional system of maintaining order.

At the same time, the Indian finds that he has new needs—clothing, salt, soap, metal tools, etc.—and that he has to work for wages to satisfy them. What chance does he have to meet these needs with the resources of his basically rural economy—an economy precarious even for Europeans? It is no wonder that the Indian often finds that his status is inferior to that of better equipped competitors who are adapted to a complex civilization.

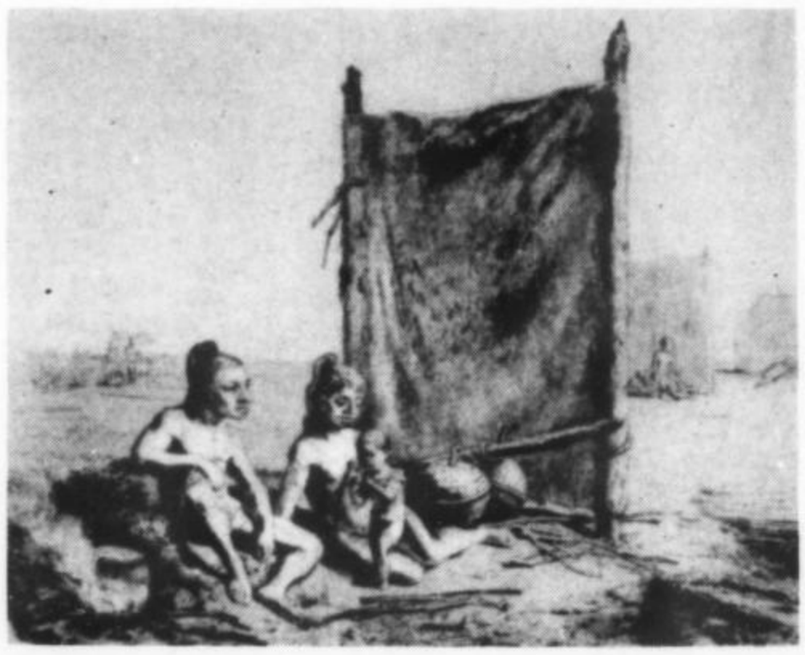
Uprooted, the Indian may lose everything — even his will to live. He no longer feels secure in a changed world after having lived among men who shared his viewpoint and his philosophy. Among Indians, the loss of traditional values breeds demoralization and, above all, loss of self-respect.

The activities of the *Serviço* have posed many questions, some difficult to answer. These problems are still awaiting solution, a solution requiring the contribution of anthropologists interested in the future of so-called "primitive" peoples. General Rondon had foreseen these new problems and, in 1942, he created a research section attached to the *Serviço*.

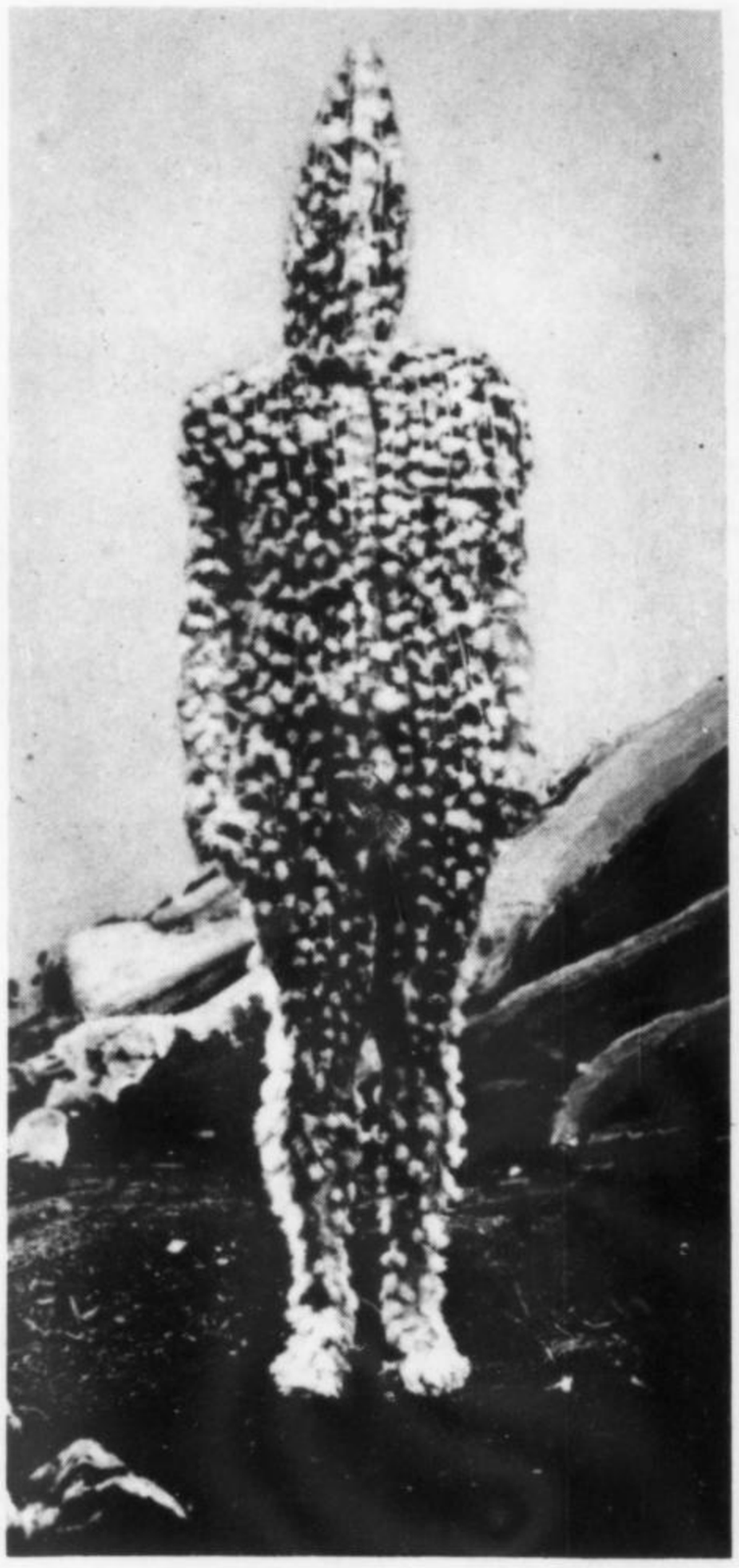
Millions of men in the present-day world live under conditions little different from those faced by the Indians of Brazil. The example of Brazil is a lesson: it teaches us that their fate need not be tragic. But a profound understanding of their problem and of the situation which is confronting them with the advance of modern civilization is essential.

Photographs copyright Dominique Darbois, E. Aubert de la Rue, Claude Levi-Strauss.

The last of the Fuegians



THE LAND OF THE ONAS—the large island of Tierra del Fuego — is depicted here on two maps drawn four centuries apart. The first, prepared some thirty years ago by Father Martin Gusinde indicates the area (Selkenam) once occupied by members of the Ona tribe. The second was drawn in the early part of the 16th century from information supplied by Pigaffetta, chronicler of the Magellan expedition. Drawing (above) also dates from the 16th century. It shows the Onas as they appeared to a European explorer of the time. Photographs taken by Father Gusinde (below left) reveal that four centuries later life had hardly changed for those who had managed to escape extermination.



DEFENCE AGAINST MALIGNANT SPIRITS

Body painting with red ochre, oil or soot may sometimes serve the Indian as a defence against weather, flies and mosquitoes, but is more commonly used as protection against supernatural enemies—the malignant spirits. Ona tribesmen painted their bodies and wore large conical masks (above) during the *kloketen* rites, the most important of their social and religious functions at which boys were initiated to manhood. This was also a male device to frighten the women into submission. Men appeared disguised as various spirits, threatening women with punishment for disobedience. Believing that spirits took the form of natural phenomena—the heavens, clouds, thunder, mountains, etc.—the Onas used imitative masks. The one representing the heaven, *Oleming*, was painted with red and white spots. His wife, *Jalpen*, wore a completely white dress to imitate the colour of the clouds. The Onas believed that if one offended a mountain, it would send rain and winds.

IN 1880, the Ona Indians of Tierra del Fuego at the southern tip of South America were a hardy vigorous tribe numbering more than 4,000. Today, they can almost be counted on the fingers of two hands.

What happened in the meantime? There could be no more striking illustration of the tragic destiny of millions of "primitive" people than the fate of the Ona Indians. The details of this particularly sordid episode in the history of white colonization have been obtained from Dr. Martin Gusinde, an Austrian-born anthropologist at the Catholic University of America in Washington, D.C., who knows more about this tribe than perhaps anyone in the world.

Hunters become the hunted

AFTER several thousand years, these Indians had become adapted to the harsh physical environment of Tierra del Fuego (its name means Land of Fire). Primarily hunters, they roamed the plains and mountains of their island tracking the guanaco, an animal related to the llama.

To the Onas, the guanaco was exactly what the bison of the North American prairies was to the Redskins. It provided them with food, and with skins for clothing and shelter, and bones and sinews for weapons and tools.

The Onas' first contact with the white man goes back to 1520, the year they were discovered by Magellan as he sailed through the straits which have since borne his name. In succeeding centuries, navigators who braved the storms of Cape Horn landed on their coasts, but only long enough to murder some of the Indians or kidnap a few unfortunates to be shown in Europe.

These incidents had little effect on the state of the tribe as a whole, and the Fuegians might have survived to our own day but for rumours, spread in 1880, that the island contained gold. Adventurers began to roam over it and, if they did not grow rich, they at least had time to massacre the small bands of Indians who crossed their path.

This first encounter with civilization, though devastating, was only the prelude to a drama of mounting horror. The bloody history of the Indians of Tierra del Fuego began with the establishment of sheepfarms in the last years of the 19th century.

Not content with cutting up hunting grounds by barbed wire enclosures, sheep-raisers, running these enormous farms, destroyed the guanacos and other game on which the Ona Indians depended for survival.

One pound for a pair of ears

THE starved Indians began to "hunt" the sheep, or "white guanacos" as they called them, and that enraged the colonists who put a price on the Indian's heads, offering one pound sterling for a pair of ears— the rate paid for killing a puma.

Hunting Indians became a profitable business and people still talk of one man who made £ 452 at it in one year. In the interests of efficiency, the "hunters" organized big beats and their human quarry—sometimes started with the aid of mastiffs—was slaughtered without pity.

The last of the Fuegians

(Continued)

The Indians, armed only with bows and flint-tipped arrows, were in no position to defend themselves. In desperation, they took revenge on the sheep.

At the beginning, the Onas killed the sheep in order not to die of hunger; in the end, they slaughtered them to vent their hatred. They cut the barbed-wire fences, stampeded the flocks, and trained their dogs to bite sheep.

Disease, poison and deportation

THIS absurd vendetta only exasperated their persecutors and led them to greater cruelty. More than ever the Indians were treated as dangerous animals, to be destroyed by every possible means "Hunts" became more frequent and more cruel, new horrors being added to old brutalities.

Dr. Gusinde recounts that children were captured, purposely exposed to contagious diseases, and returned to their parents to spread epidemics. A new method of slaughter was employed on a huge scale: mutton poisoned with strychnine was distributed to the starving.

This accumulation of horrors finally aroused public opinion and authorities decided to act, but the measures they took proved cruel and deadly. The Indians were torn from their land and deported without any regard for their living conditions. Most of them were herded onto Dawson Island; others were put into veritable concentration camps behind barbed wire.

There is no need to describe what happened to the deported Indians. The women and children who were lent or sold to colonists were probably better off as slaves than their kin imprisoned under military supervision.

Only a handful now remain

WHEN Dr. Gusinde went to live among them in 1919, the Fuegians then numbering 279, had taken refuge in the southern forests of their island. They were trying more or less successfully to live according to their traditions and to avoid contacts with the whites.

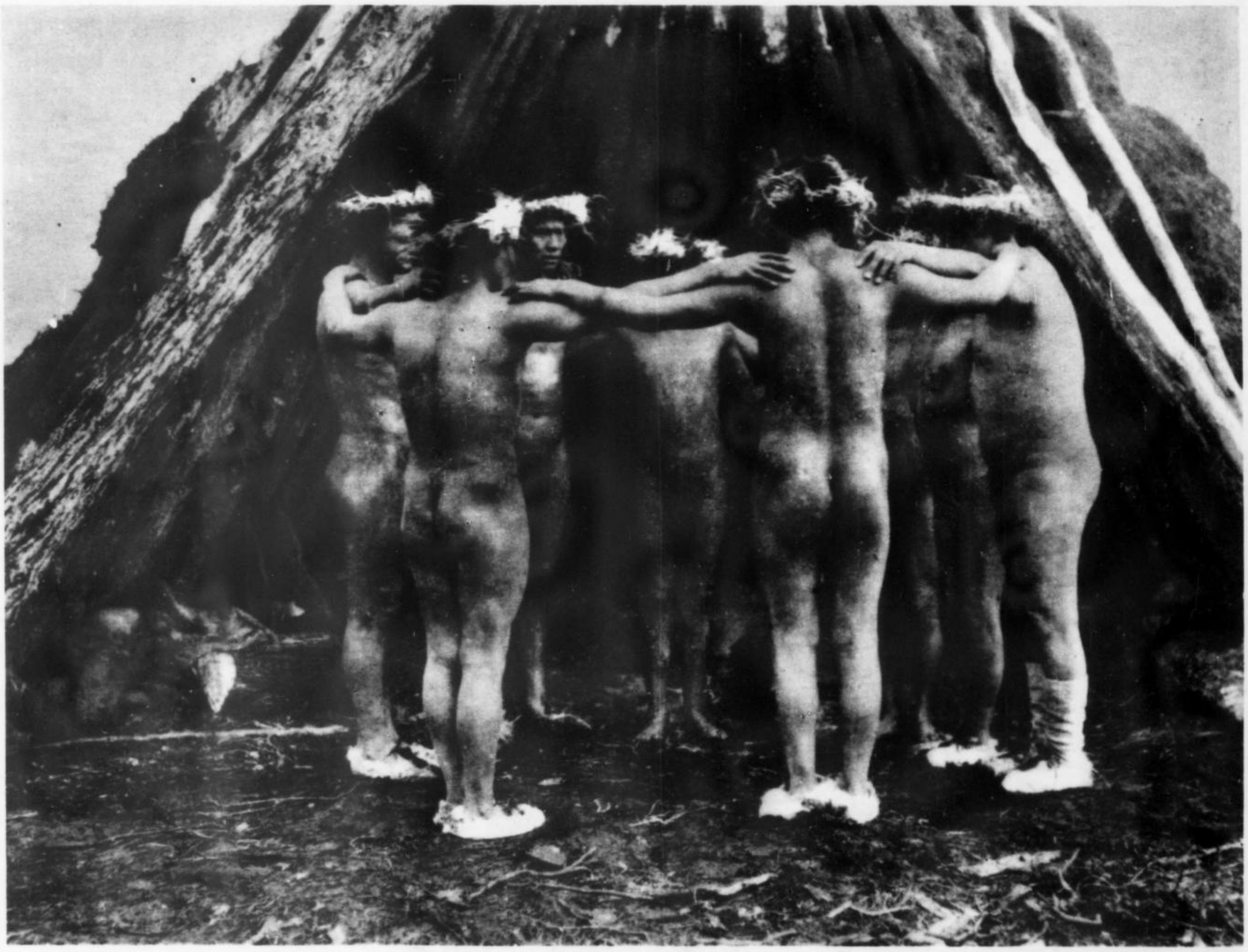
But just when there might have been hope for their survival under the protection of missionaries, they were decimated by influenza to such an extent that only a handful now remain.

These "children of nature" had led a happy and satisfying existence for centuries in their solitude at the very southern end of South America, Dr. Gusinde writes. Generation had followed generation in a fruitful way of life. Other generations might have succeeded them without harming a soul on the face of the earth.

Then, the anthropologist continues, a handful of fortune-hunting Europeans invaded their lands. In less than fifty years, an ancient Indian tribe whose past went back beyond the dawn of history had been exterminated.

DEATH WAS ONCE A TRIBAL GAME

Death was attributed by the Ona people to a supreme being called Temaukel whose will was executed through such causes as old age, sickness, war etc., and the spells of sorcerers. It was also the theme of one of their ceremonial games in which the leader, named *Kotaix* (left) painted his body and wore a horned headdress. At one stage in the game those taking part had to lie down and feign death. In wintry weather they first spread furs on the ground (below). But the game they were finally forced to play was far more cruel—a ruthless man-hunt (top photo) in which as the defenceless human quarry they were nearly all exterminated.



SPARTAN LIFE IN A COLD CLIMATE

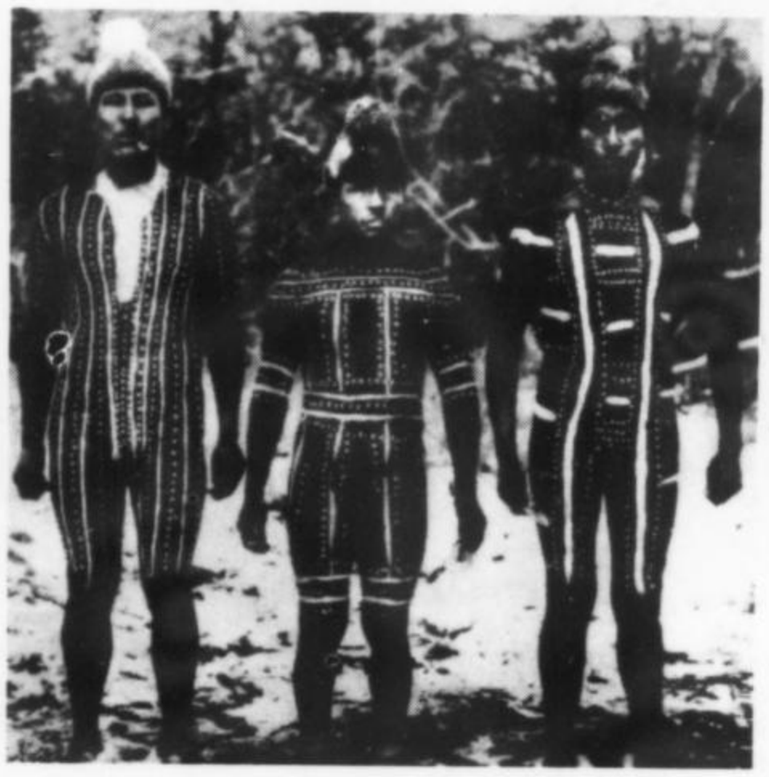
Ritual circle is formed by men in front of the ceremonial hut, which only they can approach, to invoke the spirits responsible for the weather. The severity of the climate on Tierra del Fuego over which chilly winds constantly roar is proverbial. But the people acquired an amazing resistance to cold. Immediately after birth infants were plunged into the sea or a stream and underwent similar treatment as they grew up. Only the most robust survived such a Spartan childhood. Scanty clothing consisted of guanaco furs, and for shelter Onas built windbreaks of hides.

FEATHERS SPED THE FEET OF RUNNERS

Games and sports—wrestling, foot races, archery duels—were very popular pastimes among the Onas and all helped to develop a physique capable of resisting the terrible weather on Tierra del Fuego. But superstitions also found their way into sports. Before starting a foot race runners tied a bunch of feathers to the left arm, being pursuaded that this would give them greater speed. It is, in fact, difficult to speak of games in the normal sense in relation to peoples for whom almost everything has some llnk with a superstition or religious rite.

ON VIEW AT 1889 PARIS EXHIBITION

The first Europeans who came into contact with Tierra del Fuego Indians considered them as being little better than animals. Their language was reported to be rudimentary, but this idea was completely destroyed after the Rev. Ernest Bridges went to live among them and later published a dictionary which, though incomplete, contained some 23,000 words. Their reputation as "savages" was such that visitors to the Paris Exhibition of 1889 were willing to pay to see a group of these "curious animals" who had been forcibly taken from their island homes.



PAINTING UP FOR "KEWANIX"

Ceremonial rites such as the initiation of young men were always the occasion for Ona men to dress themselves up. But there were other ceremonies such as the *Kewanix* at which women painted their bodies with traditional designs. Their strange customs did not prevent the Onas from having a developed sense of morality which required them to live virtuously so as to earn the goodwill of the gods.

NEW STYLES FOR EVERY OCCASION

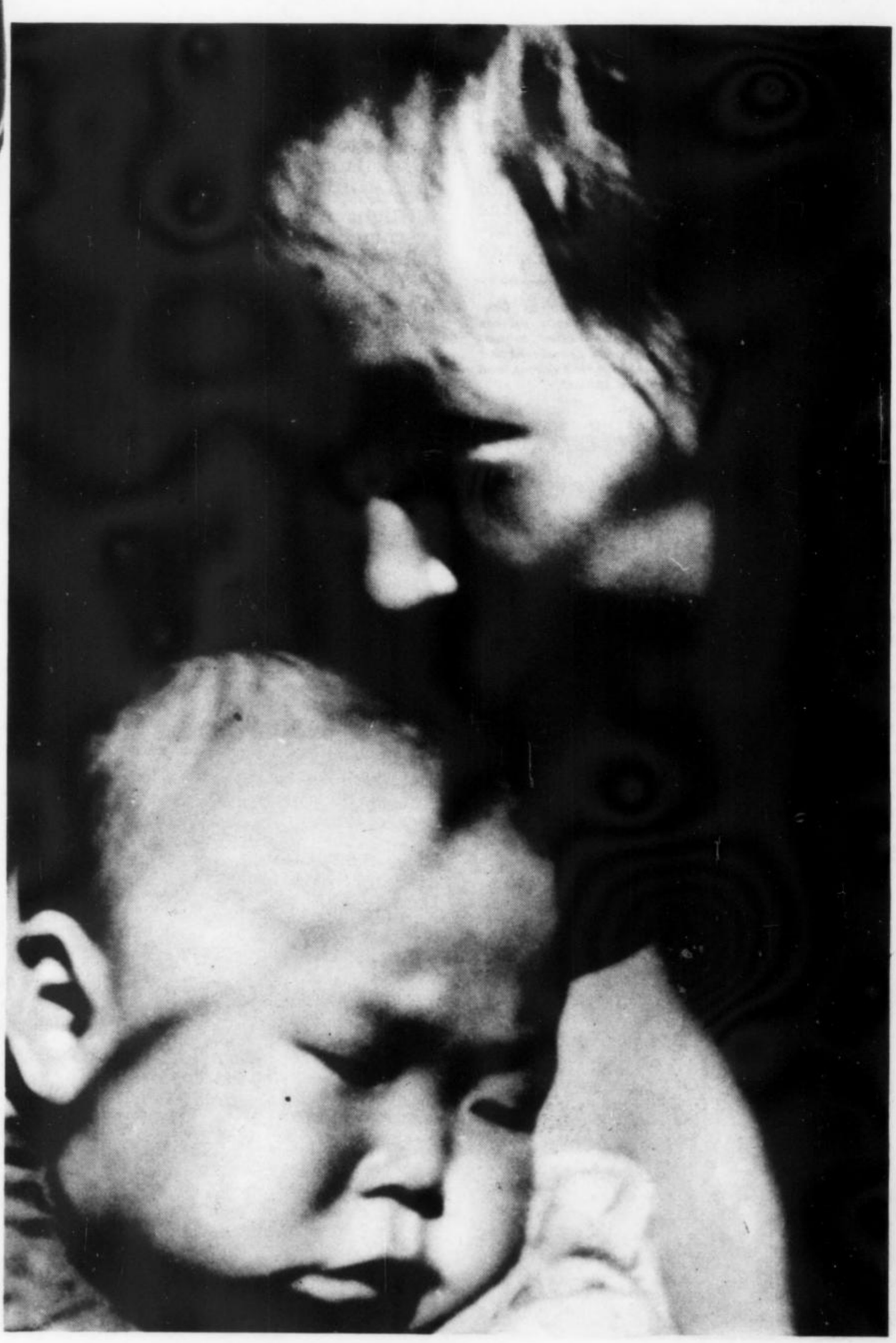
Ona women generally paid little attention to their hairstyles except for a slight parting and a fringe over their foreheads. Painting of the face was the only way of "making-up". Here (from left to right) is the make-up for everyday use, for the marriage ceremony and the special hairstyle for mourning. Another mourning custom of the Onas was to gash themselves with pointed bones to show their sorrow. Men's facial decorations varied in the same way. Photos (from left to right) show an everyday design, a typical old man's head and the warrior's decorations. (All photos illustrating this article on the Ona Indians are copyright by Father Martin Gusinde).

the eskimos

Denmark's formula for world's northern outpost

by Professor Kaj Birket-Smith.

THOUGH SPREAD OUT OVER AN IMMENSE TERRITORY ranging from the Aleutian Islands in the Pacific to Greenland, the Eskimos have managed to preserve an amazing unity of language and culture. This photograph of a woman carrying her child in Greenland could well have been the inspiration for the statuette executed by an Eskimo artist in Canada. (Photo at right copyright Paul Emile Victor, Collection Musée de l'Homme, Paris).



MANY years ago, I excavated an old Eskimo site in West Greenland. Human bones were scattered where the sleeping platform had been and all sorts of implements appeared during our digging. Local tradition told us that the inhabitants had starved to death during a particularly severe winter. Some years later, when travelling with some Eskimos over the Barren Grounds in arctic Canada, we had ourselves to go four days without food.

The Eskimos, living at the northern boundary of the inhabited earth, have always been in danger of extermination. The failing of the hunt, a violent epidemic, or a case of ptomaine poisoning might lay a whole settlement waste even in Greenland, where living conditions are easier than in the arctic regions of Canada.

It should be remembered that although Greenland is the largest

NEW SOCIAL IDEALS FOR GREENLAND'S ESKIMOS

island in the world, about ten times the area of Great Britain, little more than eleven per cent of its surface is free of ice and still less is inhabitable.

In 1953 the native population amounted to 23,360. By far the greater part, mostly of mixed descent, lives on the west coast south of Melville Bay. Farther north, in the Thule District, the so-called Polar Eskimos number only 372, while 1,588 live on the east coast in the Angmagssalik District and around Scoresby Sound.

Except for the period from 1860 to 1880, the population has been constantly growing for the last 150 years, and the annual increase is at present considerably greater than in Denmark proper. There can be no doubt that this gratifying state of affairs is, to a great extent, the result of efforts made by Denmark.

For nearly two hundred years after the medieval Norse settlements in Greenland had disappeared, only a few British and Danish expeditions and some Dutch whalers visited its coasts. However, whaling proved profitable. In the early 18th century, the increasing number of whalers in Davis Strait meant a new threat to the existence of the Eskimos, not only because of the recklessness of the crews, but also because they lured the Eskimos into selling products which the Greenlanders needed for their own use.

However, when Hans Egede, a Norwegian Lutheran missionary, came to Greenland in 1721 with the support of the Danish Government, he introduced a new era in the history of the Arctic. His object from the beginning was to revive the belief in the Gospel among the descendants of the Norsemen who, according to general belief, were still to be found in the country. For good reasons, this came to nothing ; instead, he threw himself with zeal into the conversion of the Eskimos.

It was the intention that the expenses involved in this work should be covered by trade, and in the course of half a century, trading and mission posts were spread over the west coast. Much later, posts on the east coast and at Thule were established.

At first, various private companies attempted to carry on the trade, but they suffered heavy losses. In 1774, it was taken over by the Danish crown. This made it a government monopoly, and it was forbidden for others "to navigate to or trade with the said country Greenland and adjacent islands, places, and harbours."

Right from the beginning, the government trade had quite a special character owing to the fact that, as expressed in the important Instructions of 1782, the leading principle was to be the welfare of the Greenlanders, and assistance was to be rendered to them in times of dearth. And it must be acknowledged that, in spite of inevitable mistakes, thoughtful care has always dictated the steps the administration has taken.

Gradually the old Eskimo culture was transformed. Christianity and school education were introduced and sanitary conditions were improved. The leading principle was, however, that sealing should remain the key industry. As hunting requires that the population be scattered, a clash of these economic and cultural efforts was, to some degree, unavoidable. Still worse was the fact that, with the breaking down of the old cultural pattern, the aboriginal Eskimo social ideas disappeared without being replaced by new ones.

A sort of general dejection was, in fact, predominant within Greenland's population when, at the suggestion of the great friend and champion of the Eskimos, Dr. H. Rink, the so-called "managements" were set up in 1862-1863. They were the first step towards letting the Greenlanders settle their own affairs and creating new social ideals. The success of this reform can be measured by the steady growth of a community spirit amongst the Eskimos.

About the beginning of this century a new danger turned up. While the population was steadily on the increase, there was — particularly since 1920 — a very considerable decline in the number of seals upon which the whole existence of the people was based.

The cause of this unfortunate condition cannot be stated with certainty. It is probably the result of a coincidence of factors, among which the most

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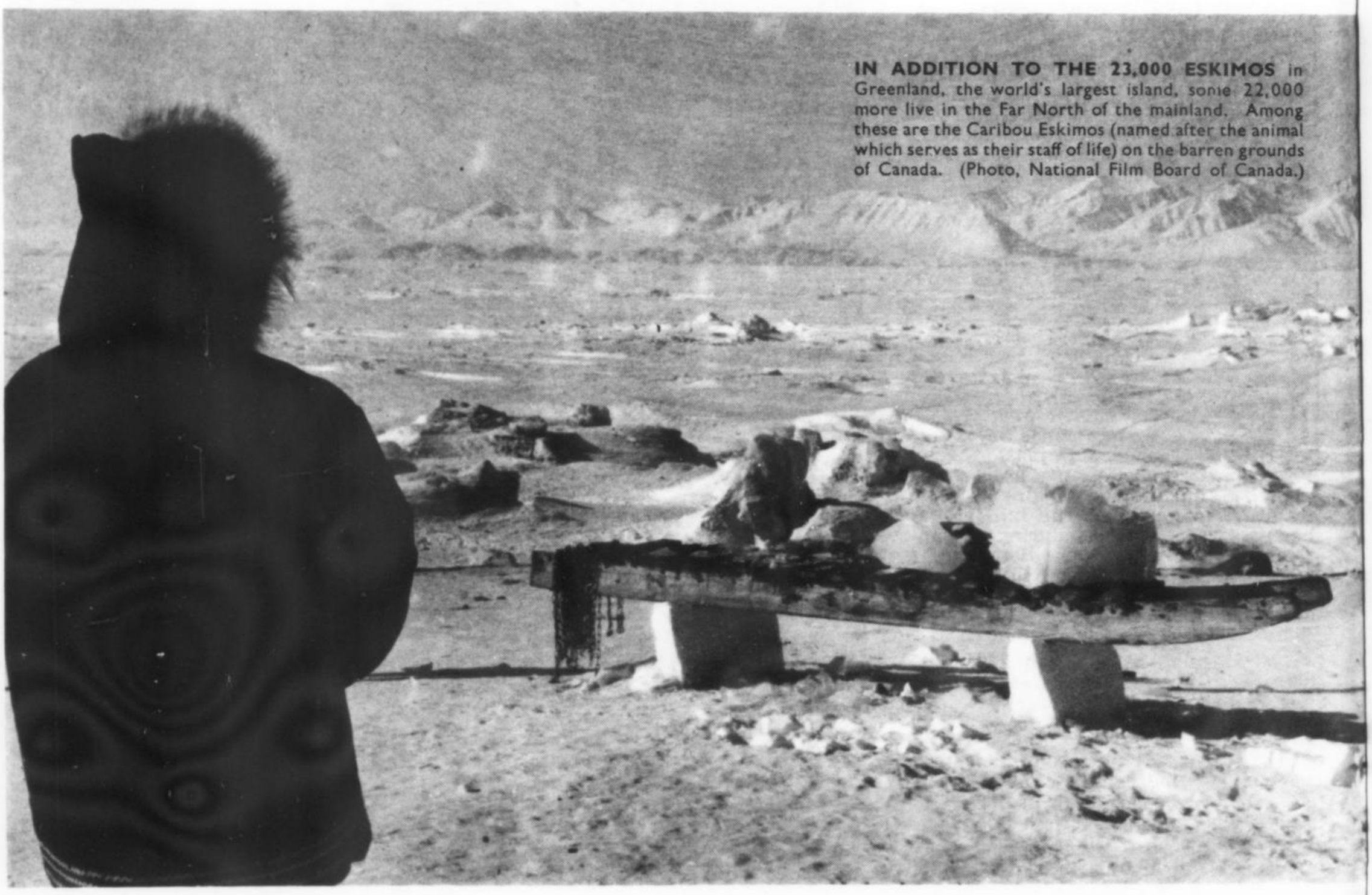
Professor **KAJ BIRKET-SMITH**, *head curator of Denmark's National Museum at Copenhagen, is a veteran of expeditions to Greenland, Alaska and other regions north of the Arctic Circle. He is today considered one of the world's leading authorities on the Eskimos and is the author of many books on the subject.*



IN ADDITION TO THE 23,000 ESKIMOS in Greenland, the world's largest island, some 22,000 more live in the Far North of the mainland. Among these are the Caribou Eskimos (named after the animal which serves as their staff of life) on the barren grounds of Canada. (Photo, National Film Board of Canada.)

FROM CLASSROOM TO THE COUNCIL ROOM. — Illiteracy has disappeared in Greenland where schools have succeeded in training young Eskimos to shoulder their responsibilities as citizens. In 1953 Greenland shed its status as a colony and was incorporated into the Kingdom of Denmark; it now sends two representatives to the Danish Parliament. These pictures show an adult class in Greenland and a provincial council meeting.

(Photos Vagn Hansed, Copenhagen.)

important are the amelioration of the climate during the last decades, the brutal butcheries on the breeding grounds by foreign sealers, and the Greenlanders' increasing propensity for using the rifle instead of the traditional harpoon.

Whatever the reason may be, it became necessary to look for new resources. Fortunately the improvement of climate which contributed to the decrease of the number of seals also resulted in a steady northward spread of cod, now found along most of the west coast. Fisheries have been developed by the introduction of improved gear and methods, and the appointment of Danish fishermen as tutors to the Greenlanders. There are at present 79 government stations for buying, salting and drying cod for the export trade.

A new job—sheep farming

WHILE fisheries are a further development on old Eskimo lines, animal husbandry and farming involve a breach with all Eskimo traditions. A sheep farming experiment was started on the initiative of the government as early as 1906, and there are now about 19,000 sheep in Greenland. Experts claim that their number may be increased fourfold.

However, the sheep industry must always, for natural reasons, be limited to the southernmost parts of the country and hence an attempt has recently been made to introduce reindeer breeding. In 1952, about 300 Lappish reindeer, accompanied by some Lapp herdsmen as tutors, were transferred to the Godthaab District.

What, then, are conditions in Greenland today? It is difficult, not to say impossible, to give an adequate picture. Since World War II, the radical changes which began slowly more than 200 years ago, have increased with rapidly growing speed. At present, Greenland is actually in a melting pot. The transition from a natural to a money economy is continuing, and at the same time the first steps are now being taken towards a gradual abolition of the monopoly and an adjustment of the difference between the price levels of Greenland and the world markets.

Social care has been improved. Any Greenlander more than 55 years of age who is not able to support himself or his family is entitled to old age assistance, as also are orphans and widows, and there is also ordinary relief for the poor. As for sanitary conditions, the country is divided into districts, each having a medical officer, one or more hospital-trained nurses, and a hospital, and there are also a large number of midwives. In order to improve hygiene and make healthy dwellings easily accessible, loans are granted by the government to enable the Eskimos to start the building of new houses.

It is generally admitted, however, that sanitary organization is insufficient and must be further developed. Tuberculosis is, perhaps, the most dangerous enemy of the Greenland community ; between two and three per cent of the population suffer from active tuberculosis of the lungs.

Like sanitary organization, education is one of the greatest problems in Greenland, because the extremely scanty population is scattered over an enormous area. School attendance is compulsory for children between the ages of seven and fourteen, and there are no illiterates.

There are four continuation schools, one of them for girls, and the seminary at Godthaab, which originally served only for training catechists (Eskimo teachers and assistants of the parsons) has been extended to include a two-year commercial class. There are now also a technical school and a special school for wireless operators.

Among other reforms, the new School Act of 1950 provides that there be erected bilingual (Greenlandic and Danish) elementary schools. While nobody thinks of contesting the rights of the native language, in which there is already a small but steadily growing literature, it is nevertheless generally considered of paramount importance that the instruction in Danish be extended in order to facilitate the absorption of European culture. It should be added that there are three public libraries in Greenland, and that for many years, selected intelligent Greenlanders have been given an opportunity to study in Denmark through two- or three-years schoarship grants.

No longer a colony

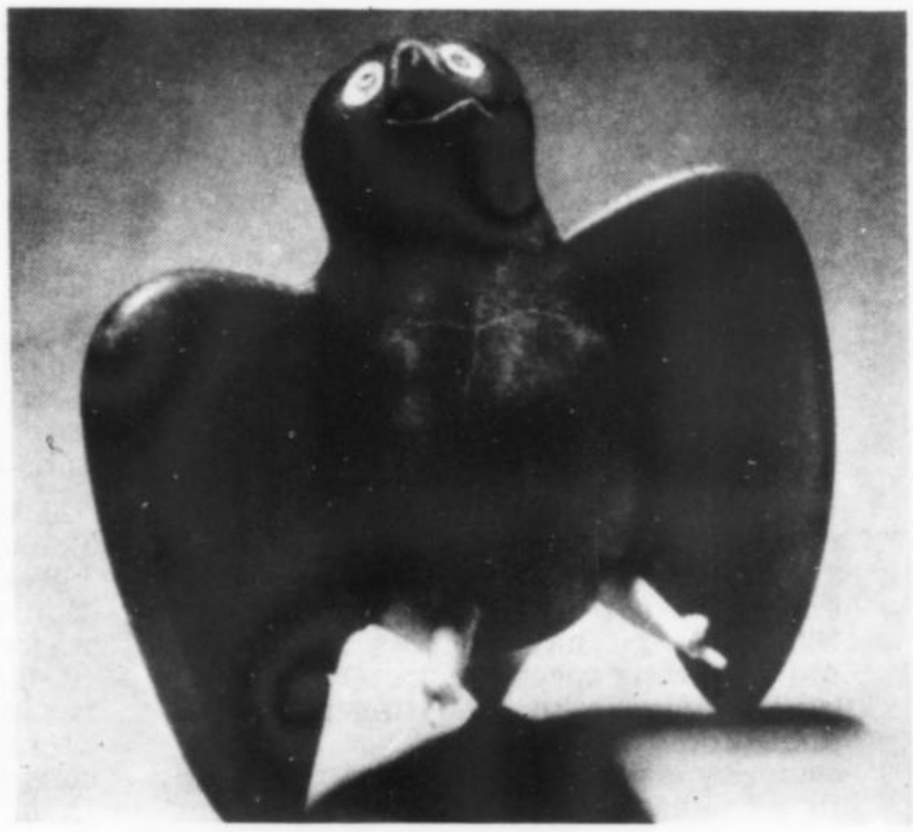
THE old-fashioned "management" system, which at one time served its purpose so well, has been abolished and replaced by municipal councils and a council for the country as a whole, elected by universal suffrage and possessing considerable authority. Since 1953, when the colonial status of Greenland was rescinded and the country was incorporated in the Kingdom, the Greenlanders elect two members to the Danish parliament.

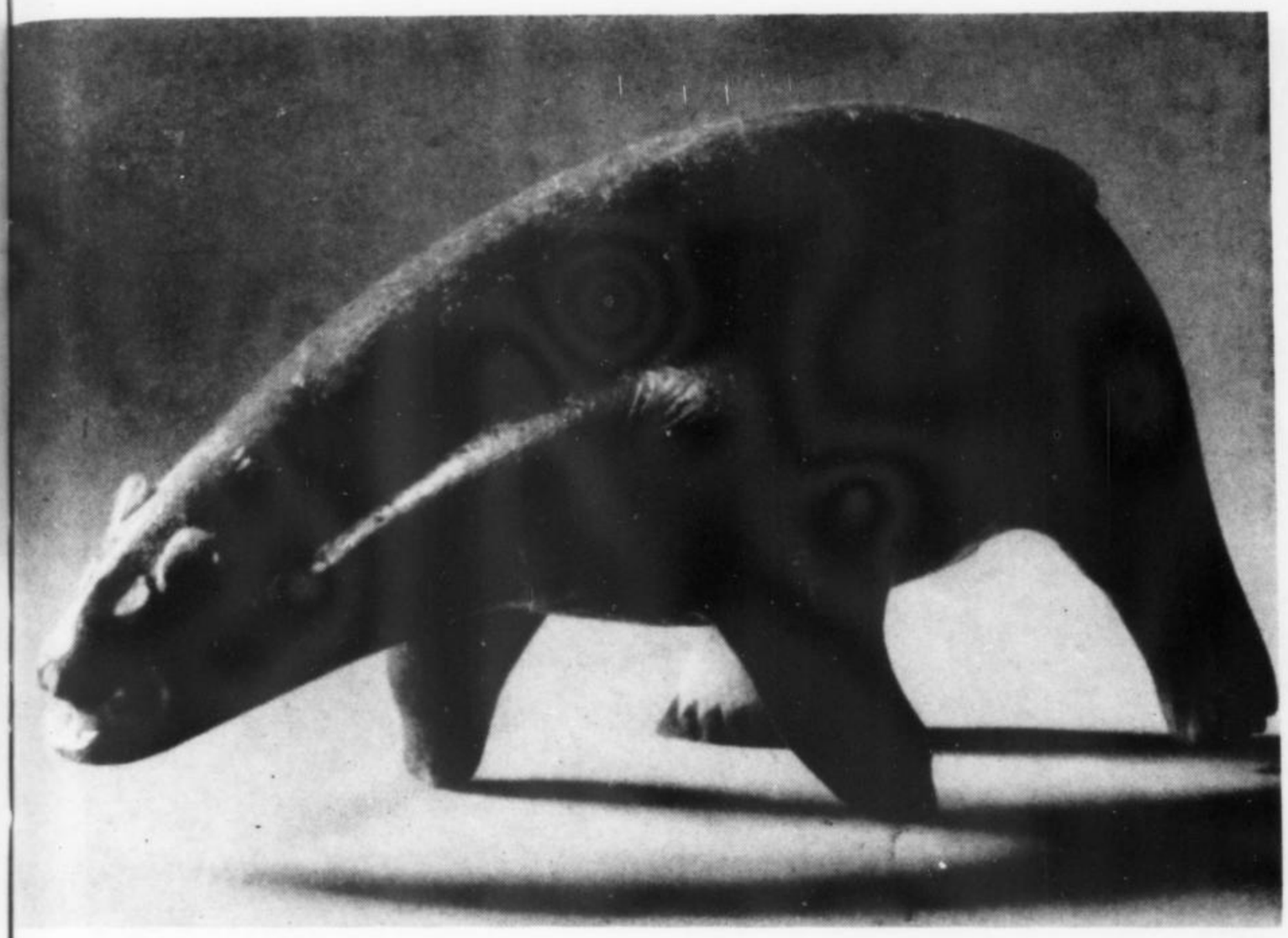
There can be no doubt that the greatest problem of the future is the inevitable transition from a natural to a money economy, and as long as it has not been completed, considerable dangers are involved. It is to be hoped that the feeling of responsibility which has always characterized Denmark's attitude towards Greenland will finally triumph.

ESKIMO ART portrays subjects through a hunter's eyes yet reveals typical traits of playfulness and good humour. This little figure, "Man on Walrus Head with Fish", is work of Ningeeuk, East Coast Hudson Bay.

THE QUEST FOR FOOD and animal fat for heat dominates the Eskimo's entire existence. He keenly portrays the other hunters, the animals and objects around him, and manages to infuse his carvings with the excitement of the hunt. Each animal is depicted with the concentration of a carver whose whole mind is focussed on his future food supply. Among the Eskimos it is thought good luck to carve the animal one is about to hunt.

ANGRY OWL as seen by hunter who approached its nest was carved by one of the best known of Eskimo artists, Kopeekilok of Povungnetuk.





BEAR HUNTING perils are suggested by the long fangs and claws which Anudilak, an Eskimo from Port Harrison, has carved on his "Angry Bearhead", a seven inch stone figure.

Canada's Eskimo Carvings

by James A. Houston

IF you ask an Eskimo of the Canadian Eastern Arctic if he carves *sinourak* (art objects), he will answer "Certainly!" For in a land where life is governed by hunting and where any one area will produce only enough game to support a few families there is no specialization.

Every family must be able to do everything: make a pair of boots, build a kayak, fashion a knife, shape a harpoon, sing a song—and, of course, create a pleasing object of art. Many experts believe that their art equals or surpasses any native art produced on the North American continent. It seems strange to find a rich, creative and productive art flourishing in such a barren land.

Living a semi-nomadic life in tents and snowhouses along the treeless shores of Hudson Bay and Baffin Island, the Eskimos are hindered by a severe climate. Fewer than 5,000 in number and scattered over an area of more than half a million square miles, they rely entirely on the sea and land animals around them to provide food for themselves and fat to heat their dwellings.

It seems probable that they first introduced tailored clothing in America. Their parkas, trousers and boots are unequalled for warmth and comfort by anything we have yet been able to design. The slim kayak is said to be the world's most perfectly devised craft. The seal oil lamp, the harpoon and fish spear are unique in design and perfectly suited to their needs.

The Eskimo possesses a cheerfulness and tranquility of mind that seems almost unknown in our modern civilization. He finds ample time in his life of hardships to carve the fine plastic forms that perfectly portray his cultural rise above his savage surroundings as well as his feeling about the people and life around them.

The surge of civilization that swept the North American continent in the past few centuries stamped out many Indian ritualistic tribal arts, leaving in its wake a meaningless souvenir trade; but the Eskimos were protected by their geographical remoteness, and the link between past and present in their art remains as yet unbroken.

The severe climate demands that the Eskimo spend a good part of his life inside his home; he is invigorated by the cold weather. As he has never wasted his time on warfare and is by nature industrious, he finds time to contemplate and to perfect his carvings.

In his art we see life through the eyes of a hunter as he perfectly portrays the moving things around him with the keen, trained senses of one whose very life depends upon observation.

"When hunting caribou one must think like a caribou" say the Eskimos. "Try to understand from its movements what it will do next."

As the season approaches for the various animals to migrate to his land, the Eskimo visualizes the thrills of the hunt. As they bring in the carvings you can feel the excitement of the search for walrus, the snake-like thrust of the bear's head, of the seals on new-formed ice, the first coming of the geese, the salmon in the rivers—the fatness, the cunning, the agility of the animal portrayed with the concentration of a carver whose whole mind is focussed on the endless quest for food.

The Eskimo's expert dissection of game gives him a fine anatomical knowledge clearly shown in his well-proportioned carvings.

In their art the Eskimos still use many primitive tools. They fashion knives shaped to their individual requirements using a shard of scrap metal set in a bone handle. A steel needle is employed for fine detail on plastic forms and for incised drawings. The bow-drill is operated by placing the short rotating drill shaft in a bone socket held in the mouth, leaving the carver one hand with which to work the bow back and forth and the other hand free to hold the carving.

After the stone has been carved and drilled into the desired shape, a rough stone is used to attain smoothness, then the carving is submerged in seal oil for several days to allow the grey stone to darken, bringing out the rich serpentine greens and reds. After this the carving is rubbed to its final finish with stone dust and much hand polishing.

Some carvers work with infinite care, portraying the subject in minute detail; others prefer to create on a wider plane, merely suggesting the details while concentrating on compact form suggestive of movement. However, no art controversy exists among them, since the inherent politeness of the Eskimo requires him to praise highly the work of his fellow man no matter how inferior it may be and to malign his own efforts. The finer his carvings are, the louder his protests that he is unskilled and his work worthless.

Like the Chinese, the Eskimos keep their small objects wrapped away instead of on constant display, until

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James HOUSTON, a Quebec artist, first became interested in Eskimo art during a trip to the east coast of Hudson Bay in 1948. He returned with some examples and interested the Canadian Handicrafts Guild, a non-profit organization, and the Canadian Government in developing an art project to encourage the Eskimos' carvings and the sale of their work.

Eskimo Carvings

(Continued)

they are passed to a guest for inspection.

Just before a walrus hunt, I visited the camp of Kopeekolik at Povungnetuk on the east coast of Hudson Bay. He offered me the most perfect stone walrus I had ever seen. I praised it and asked him if he could make me another. After a perplexed silence he said "You can see that I can carve the likeness of a walrus! Why should you want another one?" As far as he was concerned he had proved his craftsmanship as a walrus carver and that was enough.

I suggested that I had never seen him carve a caribou. After thinking about this he became so excited that he immediately went off to select a suitable piece of stone. The Eskimos of the east coast of Hudson Bay are fortunate in having many deposits of stone along the coast suitable for carvings and for making their traditional stone lamps, though it must sometimes be quarried under 15 feet of water. Baffin Islanders are not so fortunate and often must travel long distances to obtain *okusiksak* (literally, material for making kettles).

The Canadian Handicrafts Guild, which has collected thousands of pieces of carving for sale, is aware that a demand for mass production has, in the past, destroyed many creative arts. In order not to kill the Eskimo's creative ability, the Guild does not seek to increase the present volume of the craftsman's work nor change his methods in any way.

In the past four years the Eskimos of the Canadian Eastern Arctic have felt a real benefit from the sale of their art and craftswork. It has eliminated government relief in areas where hunting has failed and has given the Eskimo the opportunity to support himself and maintain his self-respect. It has not disrupted his normal way of life since carving is done in his spare time when the weather will not permit hunting.

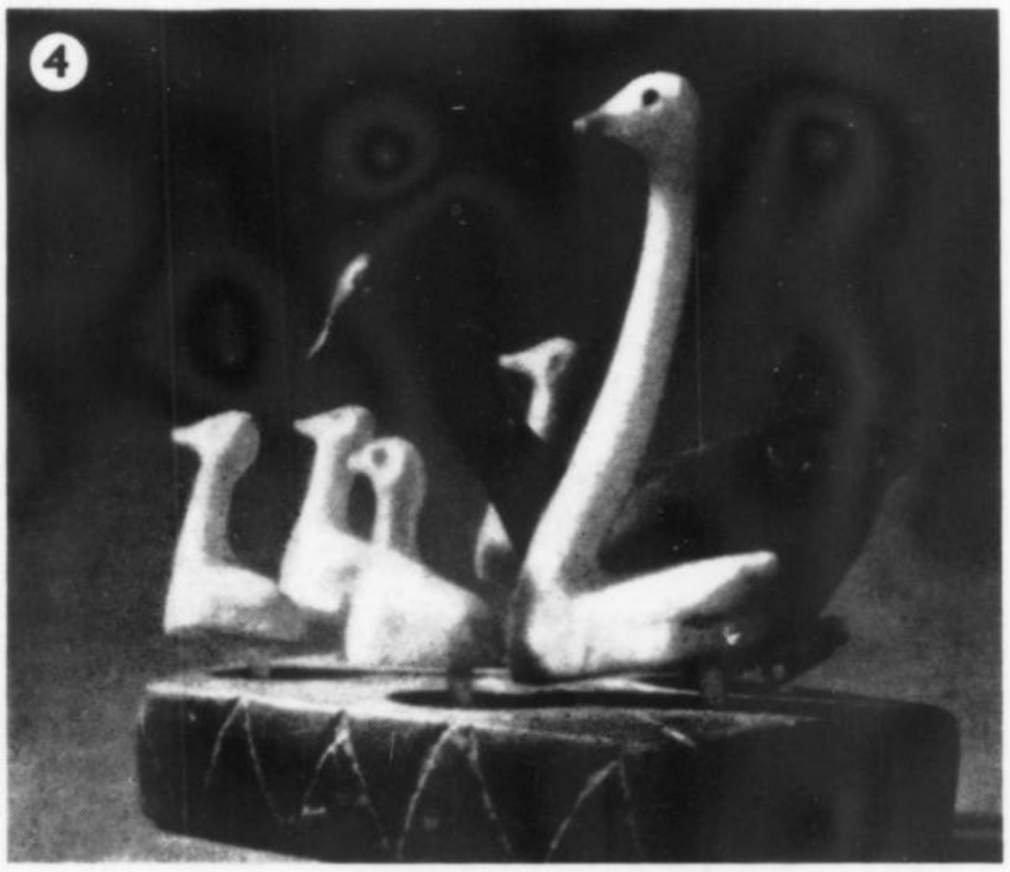
The Eskimos are happy in the work of carving objects of art, and given proper encouragement and protection, it should continue to gain recognition as a definite art form of which Canada may well be proud.

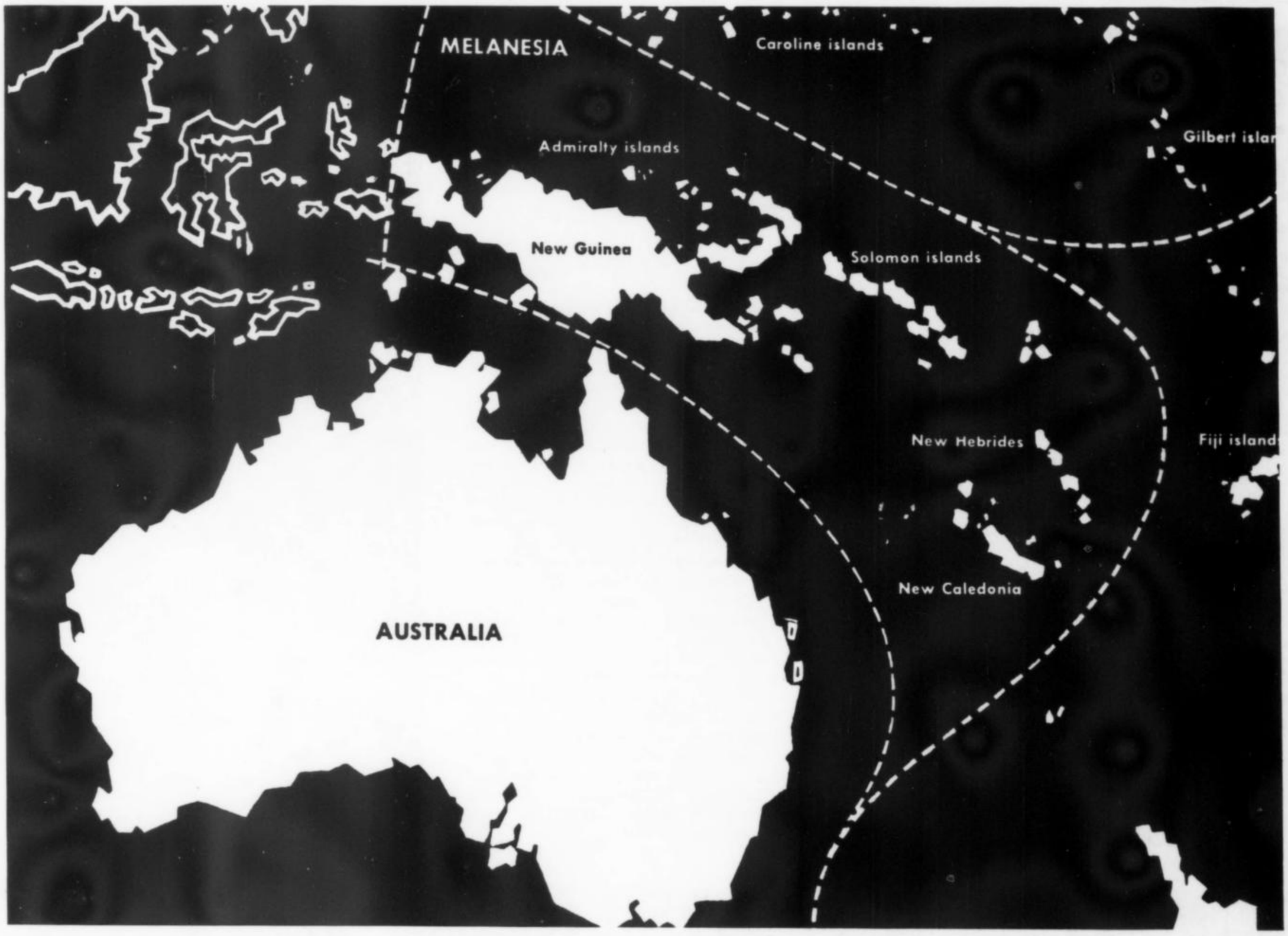
1. Woman and dog, a 6 in. high stone carving, the work of Akeeaktashook, Port Harrison.

2. Birds in trees, an imaginary subject (no trees grow in Canadian Eastern Arctic) by Itorchiak, Frobisher Bay.

3. Raven hovering over nest, a stone carving by Toolawak, East Coast Hudson Bay.

4. Snow geese and their young, carved in stone and ivory by Poota, an artist from Hudson Strait.





MELANESIA

'Black Islands' of the Pacific 'Milky Way'

THE Pacific islands, or "Oceania" as they are often called, form a kind of "Milky Way" some 8,000 miles long, stretching from the Philippines and New Guinea to lonely Easter Island, about 2,500 miles west of Chile. They consist of three great branches — a northern chain, *Micronesia* ("small islands") ; a southern, broken double chain of islands, *Melanesia* ("islands of the blacks") and, where the eastern ends of these two crescents meet, the groups of far-flung scattered islands known as *Polynesia* ("many islands").

By far the largest single islands in these three chains are found in Melanesia whose most important islands and groups of islands are New Guinea, New Britain, New Ireland, Admiralty Islands, Solomon Islands, New Hebrides, New Caledonia and the Fiji Islands.

Melanesia was given its name (black islands) because most of its inhabitants are of Negroid stock. Two races, the Papuans in the southwestern part and the more numerous Melanesians in the other regions, make up the greater part of the population. In the east there are some Polynesian admixtures and in the west live the Negrito, a pygmy people.

It is probable that the Melanesian Islands, which lie close to the Malay Peninsula, were settled before those of Micronesia and Polynesia. Yet despite their proximity to the mainland of Asia, the Melanesians are the most primitive people in the Pacific. They are not such accomplished sailors as other Pacific islanders, but they are better farmers, raising the starchy taro plant, sweet potatoes and yams, bananas, squashes and pumpkins in their gardens and small fields. Although their social and political customs are crude, the Melanesians show marked skill in wood carving and other decorative arts. (See article on Melanesian art, page 32.)

Their first regular contacts with European civilization in the 19th century, through the arrival of government officials, missionaries and traders, gave them an approach to modern civilization which was piecemeal and non-comprehending. It was not until military forces — American, Australian and Japanese — suddenly arrived in their midst during World War II that they were able to see that European life was a system in which the various parts — religion, political organization, currency, dress, etc. — all fitted together.

This experience of seeing European customs as part of the day-to-day life of a large community instead of encountering them in piecemeal fashion has been an unsettling one for a people who have hitherto always lacked a feeling of group or cultural unity. But, as Dr. Margaret Mead, one of the world's leading anthropologists, has pointed out in the following article, it has also opened up new possibilities for a genuine integration of the Melanesians into the modern world.

A PRIMITIVE PEOPLE'S SUDDEN AWAKENING

ANCESTOR WORSHIP is a widespread cult among islanders who believe that the dead have a dual soul, one part of which goes to the land of spirits, usually on a mountain top or a remote island, the other remaining around the village. Communal rites—long elaborate and dramatic spectacles—are performed to honour the spirits and to ensure prosperity. Apart from the dead there are other spirits. Shark spirits, for example, give safety on the sea, eagle spirits success in war, and snake spirits success in agriculture. Images carved from tree trunks (below) at Malekula, in the New Hebrides group, are made to honour revered ancestors whose spirits they temporarily house during the rites. Forest clearing (right) has been prepared for a marriage feast. Each of the yams (a kind of potato) attached to the posts represents a chief who will be present. (Photos copyright Aubert de la Rue and Van den Brock.)

by Margaret Mead

THE Melanesian people of the Southwest Pacific share with other South Sea Islanders their type of habitat, small islands, either coral or volcanic, and an occasional larger island which has served the function of a "mainland" to the people of the smaller islands. Like the other South Sea islanders they were cut off from the main body of civilization until the 19th century, and experienced mainly contact with European forms of exploration, trade, missions, recruiting and prospecting. Like the other South Sea islanders, their original value to European men was seen as souls to save, labour for plantations and means to the acquisition of island raw materials like copra, beche de mer, and in a few cases mineral products.

They differed, however, from the Polynesians — the South Sea islander who has become familiar in song and story— in having a far less developed type of culture, lacking the political ideas necessary for the development of kingdoms, the linking together of many people in one group, and lacking any developed historical sense. Darker skinned than the other islanders — Polynesians and Micronesians — with stiff frizzy hair, there was more probability of their being classified with the people of Africa and so subjected to attitudes developed during African-European contact.

Characteristically they were divided, one small group from another, by differences in language — often a language would be spoken by less than a thousand people — and the practice of head-hunting, and linked together by elaborate trade arrangements which made possible a great deal of geographical specialization.

Because they themselves lacked any kind of large group political organization, and were also so accustomed to forming economic ties outside their group, the irregularities of their contact with Europeans were accentuated. Different missions, different recruiting practices, accentuated by the rivalries, compromises, and fortunes of war among the

FROM HEAD-HUNTING TO MODERN WAYS

LONG GRASS HEAD-DRESS is worn by women of Malekula (New Hebrides) for village festival. In some islands husband and wife have different dwellings, and at dances separate spaces are marked off for men and women spectators. This is a strict rule, as dancing is sacred and female influence is regarded as defiling. (Photo copyright Van den Brock.)

metropolitan powers concerned, have given each small island group, or sometimes one part of one archipelago, a different history from another.

Where any small group became completely missionized it also tended to lose its own fragile traditions and sink to what appeared to be a less complex level of culture, but one which integrated better with the needs of the European economy, with indentured labour and trade the basis of the native economy of a people who paid taxes, went to church and gradually became literate at a very low level.

Those concerned with the fate of the Melanesians before World War II felt that people with such a rudimentary form of political organization, living in such small groups, could not hope to withstand the advance of civilization with enough vigour to produce any distinctive blend between the old and the new such as had occurred and was occurring in the more populous parts of Central and South America and Africa.

Where the old distinctive tradition contained so many elements incompatible with modern civilization — head-hunting, often cannibalism, complicated initiation rites and men's cults, extortionist secret societies, sorcery and magic — and so few of the social forms on which a modern political system can be grafted, such as effective chieftainship, division of labour within the society, high level craftsmanship, what hope was there that Melanesians would survive — except as bodies, to become the physical ancestors of people who would know nothing of their own pasts.

It was true that when it came to understanding European culture, Melanesians had one great advantage over peoples like the North American Indians. They understand money and trade ; the whole of their social life is shot through with ties based on reciprocal economic obligations. They also understand that human custom is relative to human society, that what is customary and correct for one people is not customary for their neighbours, that custom, like language, has both universal and variable characteristics.

This means that they need not oppose one sacred unalterable absolute

(Continued on page 31)

CHEWING BETEL NUT is an almost universal island habit. The nut of the areca palm and the fruit of the betel pepper plant are crushed together and mixed with lime. This man from Wogeo (New Guinea) carries his lime in a gourd and uses sharpened piece of bone as a spoon.

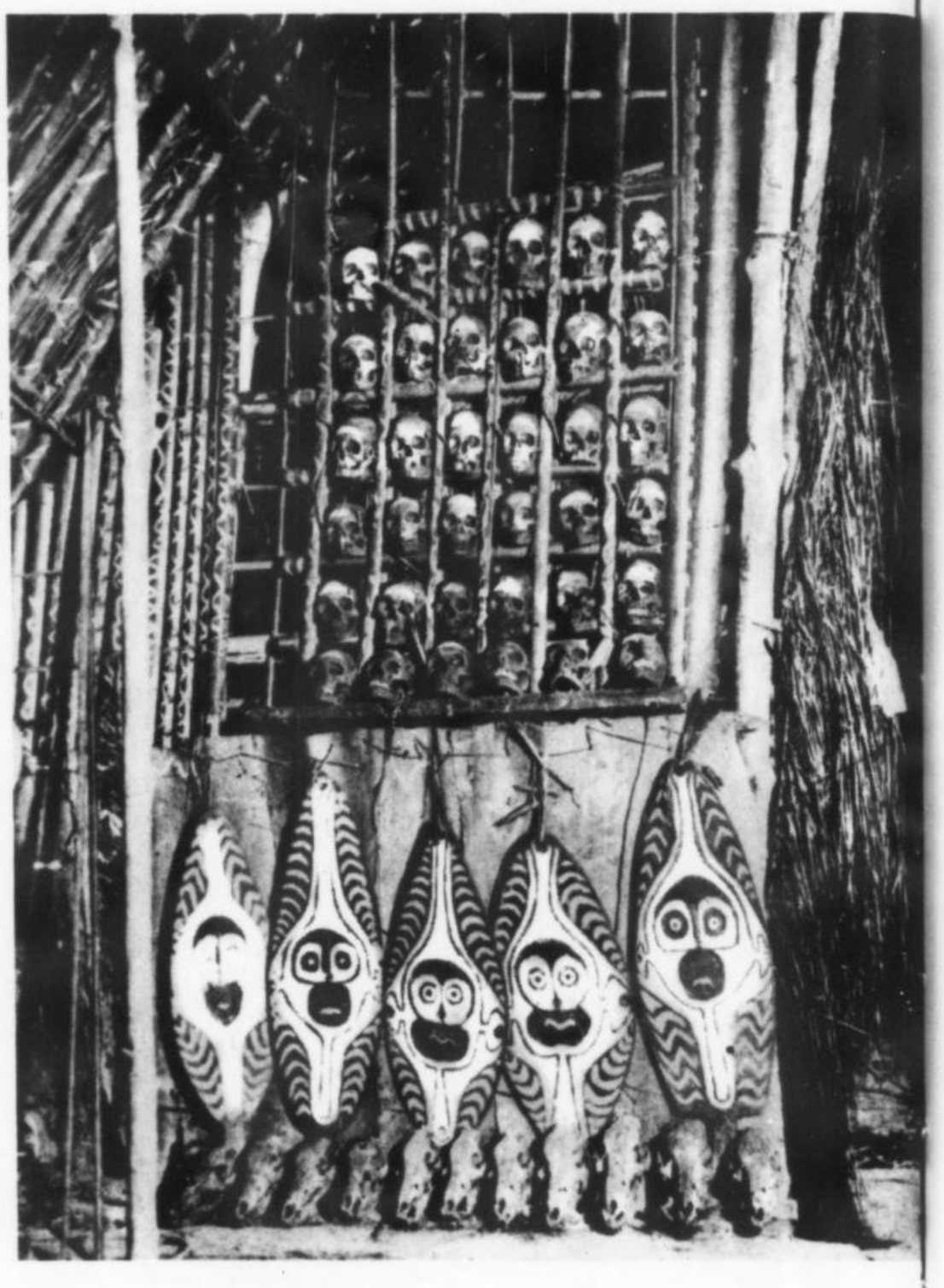
VISITING FRIENDS at Longgu, Guadalcanal (Solomon Islands). These women have taken along wooden bowls of food on their heads—a common way of carrying burdens in the islands. Babies are carried in slings so that mothers can shelter them from the sun with a mat.

Dr. Margaret MEAD, one of the world's leading anthropologists, is now associate curator of the American Museum of Natural History with which she has been associated for 28 years. A specialist on the Pacific area where she has conducted extensive studies, she has recently returned from a research trip among the Manus people of the Admiralty Islands. She is the author of many books on the subject: Coming of Age in Samoa, Growing up in New Guinea, Kinship in the Admiralties, *and for Unesco,* Cultural Patterns and Technical Change.

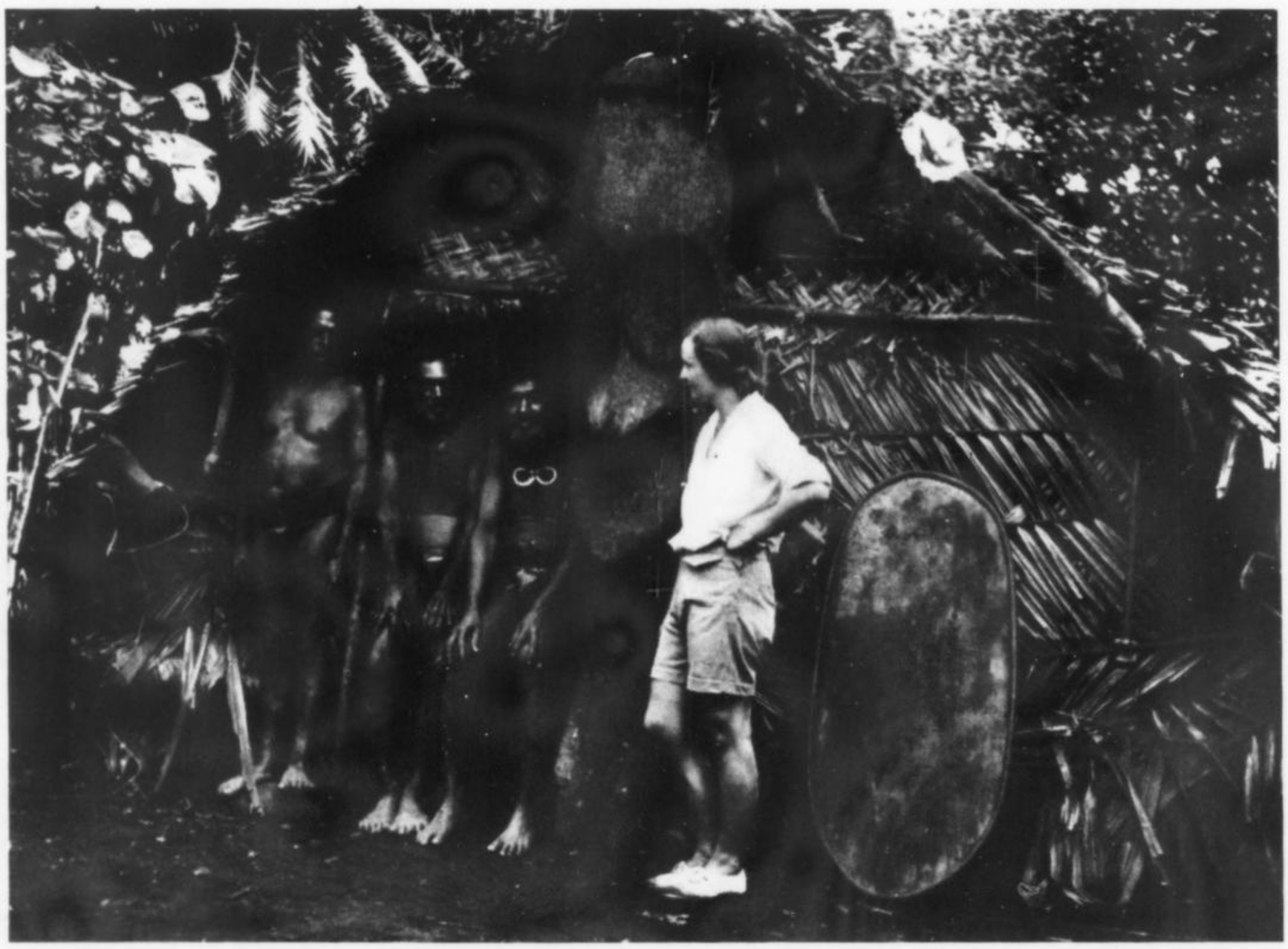
(Photo copyright Leralle.)

SILHOUETTES AT SUNSET

Islanders use every conceivable method to catch fish—with hooks and lures, with nets of all shapes and sizes, with poison, with bow and arrow, and with spear. If hand nets are used, each person takes two and the shoal is gradually driven to the shore. Often, however, the fish are surrounded by big nets dropped from canoes and then speared. Spear and arrow call for fine co-ordination of hand and eye. The fisherman stands on a rock close to deep water, poised to shoot or spear.



HUMAN SKULLS both of relatives and of enemies are carefully preserved by people of the Papuan Gulf, New Guinea. Papuan widows (above left) carry skulls of their former husbands slung round their necks. In the ceremonial hut (above right) skulls are kept in racks, each in its own compartment. Wooden plaques beneath, decorated with conventional faces, are considered very sacred and are associated with powerful spirits of the dead. These plaques are also placed near the skulls of enemies killed during head-hunting expeditions as protection against the spirits of the enemy dead. Under the plaques are the skulls of pigs which have been sacrificed. (Photos copyright Demaître and Hurley.)



SACRIFICIAL HUT on island of Ambryn (New Hebrides) can only be entered by men. At socio-religious ceremonies men advance in social position depending on their wealth (number of pigs) and the securing of masks and statues prescribed for such ceremonies. Pigs are killed with clubs hanging from hut (left), cooked and then eaten on the wooden tray (right). The white woman in the photo is a French ethnologist, Mme E. Aubert de la Rue.

(Continued from page 28)

way of life to the demands of the Western world, or conclude that if the new lives, the old dies.

Furthermore our calculations about their future reckoned without the unprecedented experiences of World War II, when the Melanesians encountered, not the isolated government official, missionary or trader, but large groups of men from highly organized societies who were concerned with their own affairs — fighting a world war — rather than with persuading, or forcing a handful of "natives" to gather coconuts, bury their dead differently or pay a small head tax.

Anthropologists know that when members of one society immigrate into another society where they can witness the whole on-going life of a large community, they learn much more rapidly than when the customs of a country are brought to them piecemeal by single emissaries. In the case of the Melanesians whole villages, whole tribes had the experience usually reserved for single immigrants, and they combined with it the security of remaining in their own land, where the reefs and bush are well known to them, the fish and birds familiar.

Equipped with the by-products of the economic relationships of the last century — a knowledge of money, and a trade language, Neo-Melanesian, which is based on the grammar of Melanesian with a vocabulary from the whole world, although preponderantly English in origin — they have begun to comprehend with great rapidity that European life is a system, a whole way of life in which all the various parts — religious belief, political behaviour currency, dress, sex ethics, medicine — all fit together. From an approach to modern civilization which was piecemeal and non-comprehending, they have moved to one which has the possibility of a genuine new integration.

The Polynesians like the Samoans and Tongans were able to work out new cultural forms which included Christianity, literacy and the incorporation of European manufactured products and still maintain their sense of dignity because before the coming of Europeans they already had the necessary sense of themselves as a people. The Melanesians are getting a similar sense of Ethic Identity by having experienced the same sense of what being a people is, in their contact with large Australian, American and Japanese military organizations in World War II.

All over Melanesia since the war there have been attempts on the part of local groups to establish a local version of European-American culture. Old rudimentary political forms of their own, and the systems set up by Europeans—local constables appointed by government officers with limited police-power or liaison duties—have been called in question, as the Melanesians attempted to work out line and staff organizations, to include "councils", "committees", "customs", "passes", etc. into their local life.

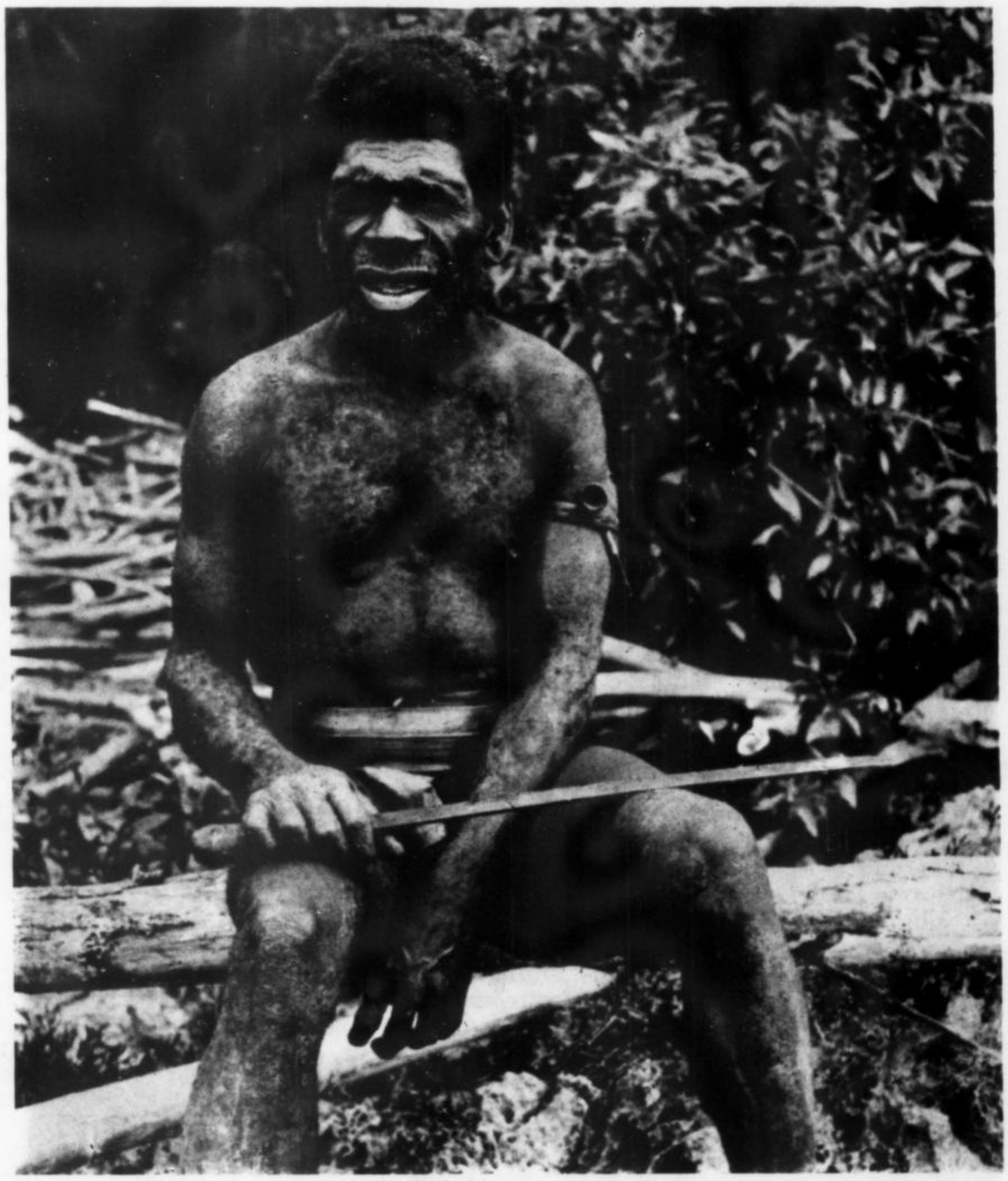
It is they now who are insisting on the individual right of contract and right of a man to the money he earns, an insistence which is often inconvenient to the trader and recruiter, who has learned to exploit the older kin organization and "buy boys" from the old men, or bribe the government appointed constable illegally to use his power to recruit labour.

Local leaders have set up "armies" and "navies", have collected sums of money which have been branded as "war chests". There have been difficulties with the Missions, many of them still operating in the climate of opinion of pre-World War I, insulated for half a century from a world which has passed from a belief that it was necessary for men to submit to deprivation with good grace to a world in which education, medical care and economic adequacy for every human being is seen as an obtainable goal.

Government officials, most of them fresh from the sufferings and hardships of World War II have tended to look with a jaundiced eye on all these manifestations which have received two most unfortunate labels, being called either "cargo cults", that is mystical nativistic cults which arise out of the disappointments of contact between a more and a less developed civilization, or "Melanesian nationalism".

The task before us is to realise that this mid-20th century renaissance of one of the most primitive groups of people in the world, must be seen in mid-20th century terms, as part of a world which has conceived the U. N. and the possibility of *nationhood*.

These Melanesian movements are not nationalistic—yet—although we may make them so by our own mistaken tactics. They are not mere "cargo cults", or blind alley defeatist attempts to cut themselves off from the religion and politics of a world with which they are unable to deal. They are a search for an ethnic *identity*, a sense of themselves as a people, grounded in their realization of what being American, or Australian or Japanese means. It is a 20th Century task to find, and that quickly, formulas for bringing them into the modern world.



CANNIBALISM still exists in the interior of some islands although the open warfare between tribes which once provided the victims is now infrequent. After wreaking vengeance on their enemies, the victors ate them, believing that they would thus acquire the virtues of the dead. This old man from Malekula Island (New Hebrides) has practised cannibalism but the weapon he holds is simply a chopper for cutting his way through the forest. (Photos copyright Aubert de la Rue.)

'MAGIC' ARTS of the South Pacific

Artists and craftsmen, like these villagers in New Guinea, have made Melanesia one of the richest primitive art regions in the world.

THE South Pacific in general is an area of such great and far-flung diversity—in races, customs, beliefs and in material culture—that the arts of this vast area are as manifold as its races, and the variety of styles even greater than in Africa.

Of all the arts of Oceania, that of Melanesia is the most varied and the most fantastic. The region itself is lush, dramatic and often dangerous. Volcanic eruptions, tidal waves and storms give to many parts of it a melodramatic, violent quality that has strongly affected the lives and beliefs of its inhabitants.

Awed by natural phenomena the people attribute them to supernatural forces. Believing that spirits invest animals, places and objects, they perform long and dramatic rites to venerate and gain the favour of these spirits and to invoke the aid of ancestors.

Secret societies, initiation rites, elaborate communal ceremonies, masked dancing, head-hunting expeditions and cannibalistic practices are so many expressions of Melanesian preoccupation with the supernatural.

Melanesian art reflects the same preoccupation. Indeed, its relation to ceremonies and occult practices must be taken into account in judging its effectiveness. An active cult of the dead explains the abundance of ancestor figures. A rich ceremonial life requires all sorts of objects, including masks, drums, clubs, shields, paddles and ornaments, and many Melanesian objects must be seen as "props" for use in dramatic ceremonies or as terrifying "tests" sprung suddenly on initiation candidates.

Small clay mask from the New Hebrides.

The richest flowering of Melanesian art is found in New Guinea—over 1,300 miles long and the second largest island in the world—which has been described as one of the three most prolific centres of primitive sculpture in wood, the others being Negro Africa and North-west America. Throughout this vast island there is hardly any implement, ritual or profane, without a plastic or linear decoration of some kind.

Carved neck-rest from New Guinea

In New Guinea, as elsewhere in Melanesia, the aesthetic idiom varies greatly from district to district, although six main different local styles can be distinguished. These correspond to the six main culture areas: Dutch New Guinea, in the west; the Sepik River and the Huon Gulf, in the north; Torres Straits and the Gulf of Papua, in the south; and the Massim Area in the east.

Among the most striking styles, those of the Sepik River and the Gulf of Papua are distinguished by their use of colour to emphasize design and the effect of violence and sensuality they convey. The diversity of conventions used in the representation of facial features and parts of the body by the Sepik River artists is bewildering. Eyes, for example, appear as pin points or as huge circles, as narrow slits or as wide ovals. Heads may be round, oval or diamond shape. Such an arbitrary rearrangement gives to these figures an urgent, excited air.

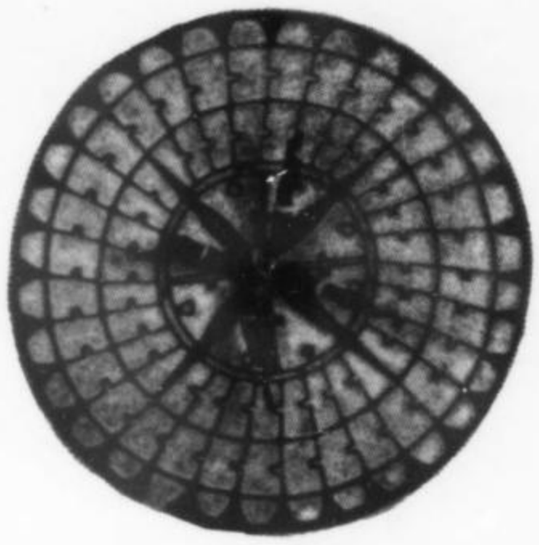
These carvings—beak-nosed figurines and brooding shell-eyed masks—have a peculiar vitality, a kind of nightmare reality. The striking use of colour—red, white, black and orange—accentuates the intensity of expression and the perversity of form. Never did the primitive imagination translate more vividly into art the concepts and creatures which haunt it.

In contrast to this feverish and even morbid art is the restrained and delicate carving work of the Massim Area of New Guinea. Primarily an art of line, its designs are precisely composed and carefully executed. Magnificent designs and scrolls, incised on the surface of a hard dark wood and filled in with white and red, give it a distinctive character.

In Melanesia even utilitarian objects are generally adorned with motifs derived from the mythology, religions, beliefs, ancestor cult or the magic of the tribes. One curious example of art stimulation through the ancestor cult is found in the carving of mortuary figures called *korowaar* in the Geelvink Bay area of north-west New Guinea.

Originally a *korowaar* was simply the relics of a dead per-

son, a handful of dried bones sewn up in a cloth. Then it became the custom to place the dead person's skull on a wooden support, which in turn became the carving of a small human figure to which the exaggeration of the legs, arms and head gave a monumental character.



Carved shell ornament, Solomon Isles.

The figure was carved during the life of a person so that at the moment of death the spirit could enter it. When a village sorcerer wished to contact the ancestors of the tribe, he would pick up the figure in his right hand and use it to strike the ground until he went into a trance.

Ancestor worship is reflected strongly in the architectural carvings on the houses of the Melanesians, notably in New Caledonia. Human heads and faces are found flanking the door, on the lintels and windows and on the roof spires. All house sculptures are meant as memorials to the ancestor and to preserve his protection. During *jedo*, the mourning ceremony, the carvings regarded as participating in sorrow are "killed", by being slashed and mutilated with knives. New Caledonian art is essentially a sculptor's art as many other wood carvings show. These include finely shaped pick-like' or "bird head" clubs, wooden ceremonial knives with heads or faces carved in relief, decorated combs and round-headed axes—symbols of power.

Intense effort has gone into the production of objects used at religious ceremonies. This has been specially marked among tribes in the Papuan Gulf area whose ceremonies were organized in cycles often spread over a decade. Governed by strict taboos and ritualistic, often magical, procedures, the making of huge, elaborate bark-cloth masks absorbed nearly all of this time. Sometimes as many as 100 masks, some of them 13 feet high were produced. Ancestor figures and plaques, shields, belts and clubs were also carved for the rites.

The vast amount of carved, modelled, painted and fabricated objects produced by the Melanesians using wood, bone, bark, stone, fibre and pith, as well as decorative materials such as feathers, shells and leaves, has made their islands one of the richest primitive art regions in the world. Here are artistic taste and traditions which should be respected and preserved, however much the Melanesian way of life may change through ever increasing contacts with our modern civilization.

Bird carving from Solomon Isles.

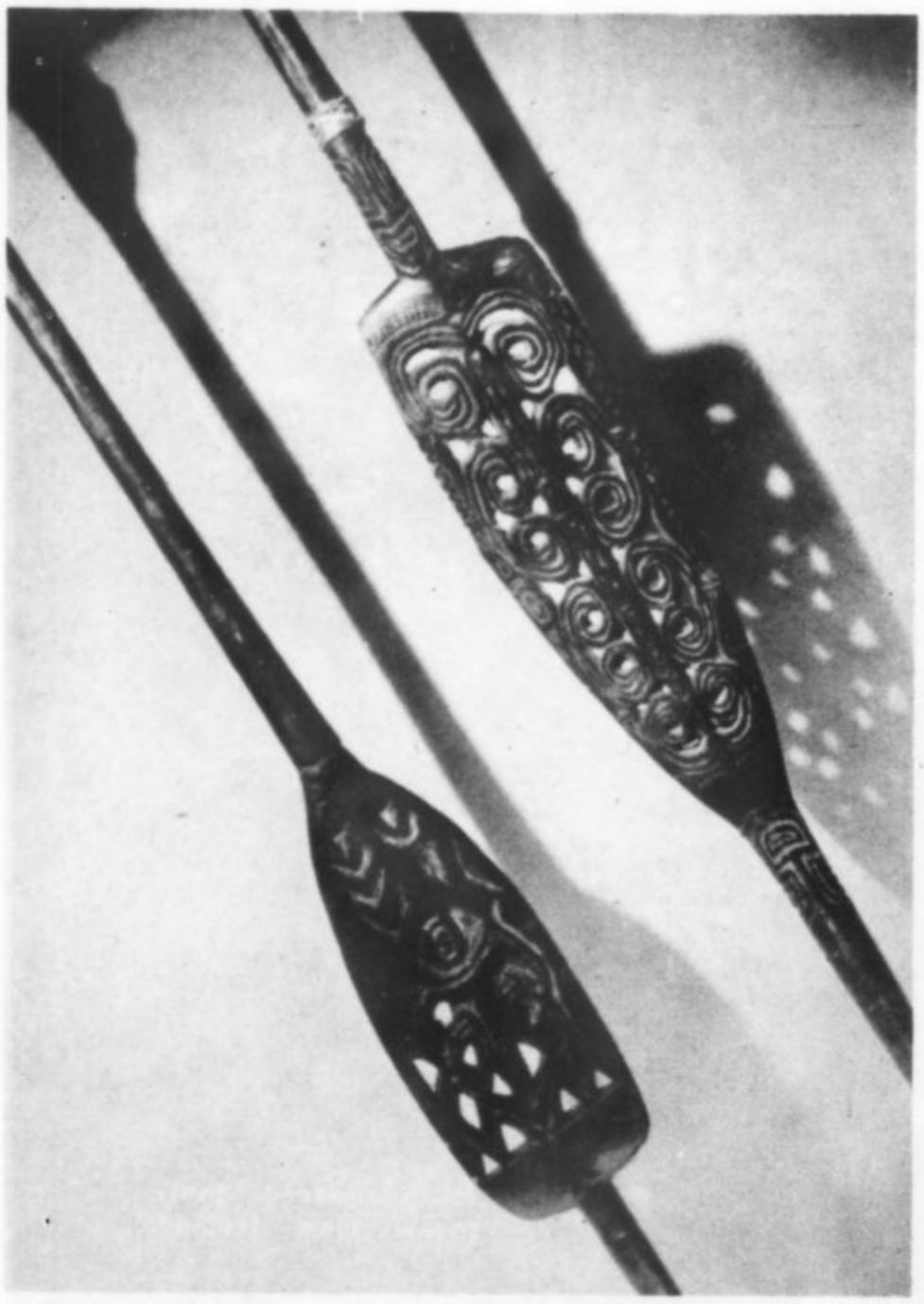
Mask from New Caledonia.

Multi-coloured dance mask, New Ireland.

Statuette of a "European", New Guinea.

Canoe ornaments from New Guinea and the Solomon Isles.

Detail of carved wood crocodile, New Guinea.

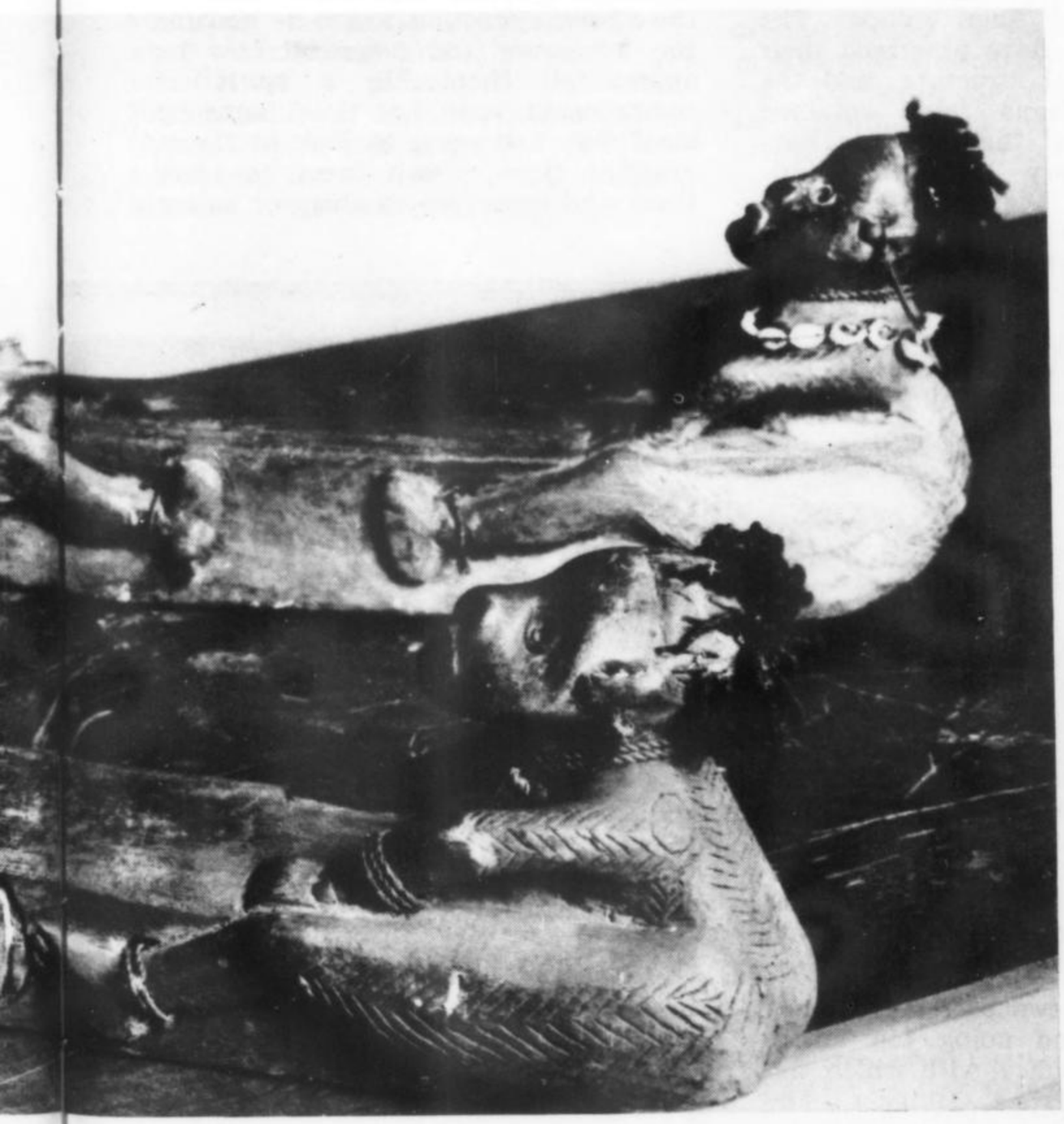


Head-hunters' lances, New Guinea.

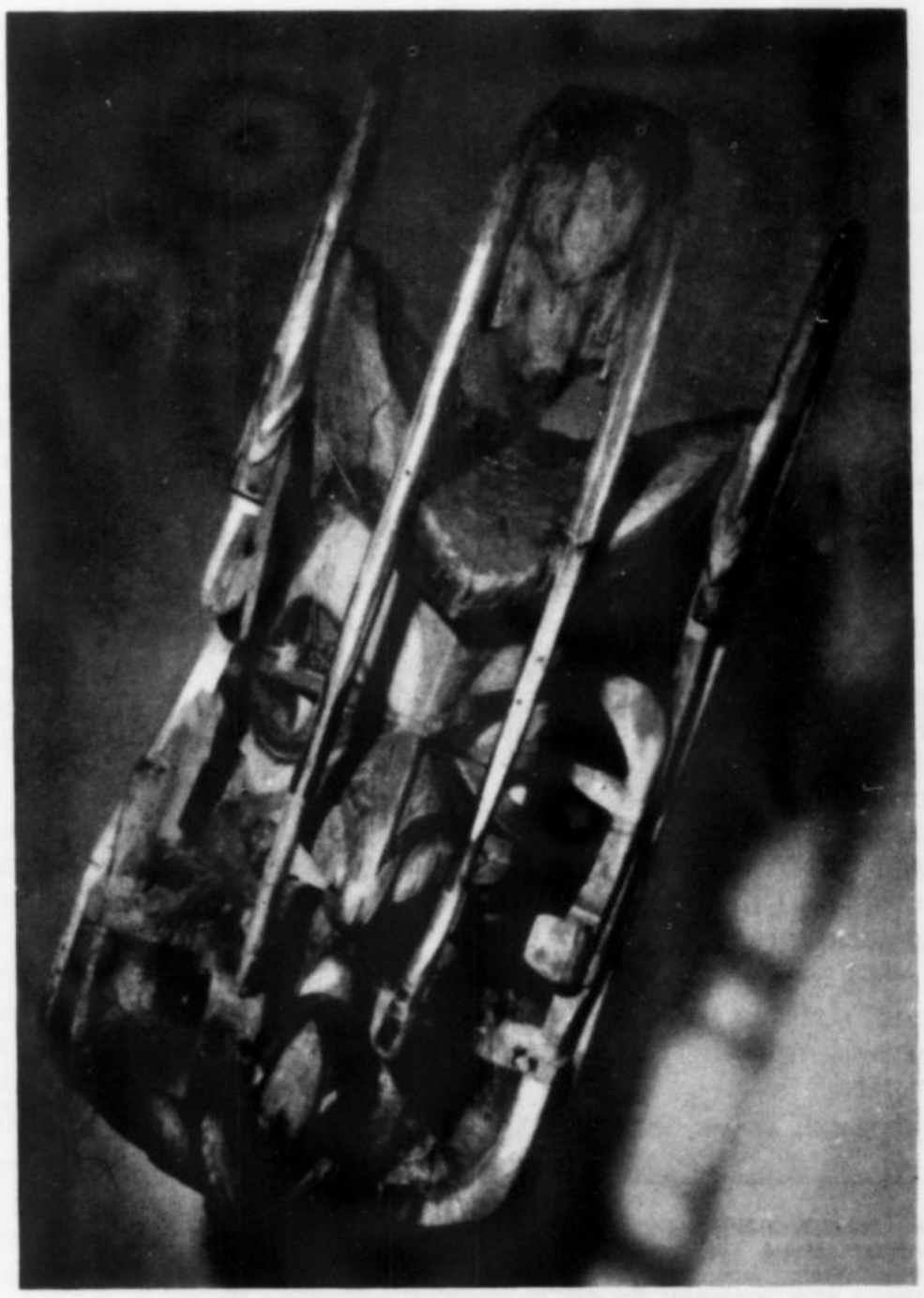
Sculptured wooden he ad-res

Wooden roof spire from New Caledonia.

Ancestral figure made of bark cloth, New Hebrides.



ad-rests, New Guinea.

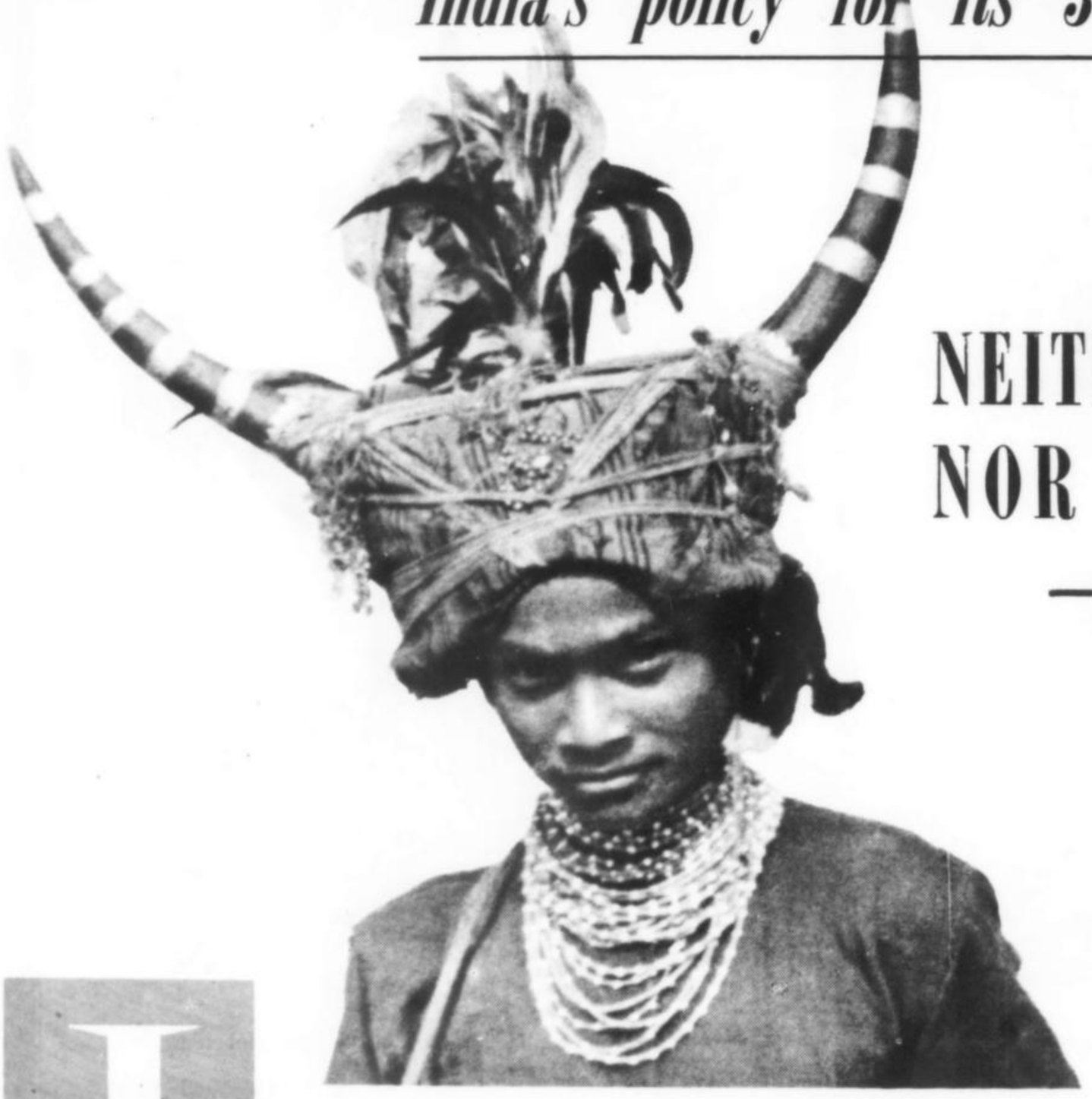


Sculptured wooden mask, New Ireland.

India's policy for its 30,000,000 tribesmen

NEITHER ISOLATION NOR ASSIMILATION —PROTECTION

by Dr. Verrier Elwin



HORNED HEAD-DRESS is part of the traditional costume of the Durwas of Bastar, a tribe in Central India. It will remain so under India's policy of improving living conditions among her tribesmen—7 % of the country's population—without sacrificing their way of life.

IN modern times. there have been three different methods of approach to the problem of the thirty million tribesmen who live on the frontiers of Indian civilization. The former British Government tended on the whole to leave them alone, partly because the task of administration, especially in the wild border areas, was difficult and unrewarding; partly from a desire to quarantine them from possible political infection; and partly from a genuine belief that they were happier and better as they were.

In sharp distinction to this is a policy of "assimilation" which has become very popular since Independence. Both Christian missionaries and Hindu social reformers have, in their different ways, desired to see the primitive civilized, their "inferior" social customs and ideas eliminated and their identity assimilated either into the Christian church or into the general framework of Hindu society.

The Christian missionaries have had striking successes in some tribal areas, though they have failed in others. Especially in Assam, they have converted a very high percentage of such tribes as the Lushais, Khasis and the so-called Naga groups. The Christian Khasis have preserved their matriarchal social structure, and the Lushais and Nagas have retained certain aspects of their life (in particular their very beautiful handweaving), but in the main they have lost most of what is distinctively tribal, adopting a semi-western culture.

Similarly, the ambitious programmes of education, reform and change now being initiated by most of the State Governments, while bringing many economic and social benefits to the people, are likely to bring to an end the older values, good and bad alike, of tribal life. For though a sincere desire for tribal welfare is now everywhere apparent, this is not matched by an equal interest in or respect for tribal culture.

You cannot make an omelette without breaking eggs, and the continued existence of the tribes as tribes is regarded as of less importance than the march of civilization. This policy has led to strong zenophobic reactions in some areas, and in Bihar, for example, the separatist Jharkand Party is the largest opposition group in the State Assembly.

Between these two extremes of doing too little and doing too much, there is a third policy, with which the name of the Prime Minister, Mr. Nehru, is associated. In one of the most remarkable speeches ever made by a public man on the problem of primitive peoples, Mr. Nehru spoke of the strong attraction which he had for the tribesmen and described how he approached them. "in a spirit of comradeship and not like someone aloof who had come to look at them, examine them, weigh them, measure them and report about them or to try

HANDICRAFTS are at the base of many tribal economies in India. Here, a young Muria prepares rope from fibre; other major crafts are basket-making, weaving and spinning.

Dr. VERRIER ELWIN *has spent most of the past two decades among aboriginal tribesmen in India as anthropological consultant to the Indian Government. Founder of a settlement devoted to aboriginal welfare and humanitarian research on their problems, he was the editor of "Man in India", from 1943 to 1949. He is the author of* Tribal Myths of Orissa, The Tribal Art of Middle India, *and* Myths of Middle India.

and make them conform to another way of life."

"I am alarmed", he said, "when I see—not only in this country, but in other great countries, too—how anxious people are to shape others according to their own image or likeness, and to impose on them their particular way of living." He declared that he was not sure which, the modern or the tribal, was the better way of living. "In some respects I am quite certain theirs is better." "There is no point in trying to make of them a second-rate copy of ourselves." He emphasized the importance of encouraging the tribal languages, so that they would not only prevail but flourish. He insisted that a measure of protection must be given so that "no outsider can take possession of tribal lands or forests or interfere with them in any way except with their consent and goodwill."

He hoped that the high sense of discipline, the power to enjoy life, the love of dance and song would endure among the tribesmen. Schemes for welfare, education, communications, medical relief were no doubt essential: "one must always remember, however, that we do not mean to interfere with their way of life, but want to help them to live it."

Now this attitude poses a serious problem to the administrator. The assimilation policy which holds, broadly speaking, that there is not much to be said for tribal life ; that if it disappears it will not matter greatly ; that the "backward" must be brought forward and that the low are to be "uplifted", is simple and straightforward ; it is logical, and it brings many benefits—at a price. So did the British policy of leaving well alone—though at a different price.

But the new attitude, the Nehru attitude, has complex implications. For unhappily, tribal culture is the most delicate thing in the world. Of it we may say what Oscar Wilde said of innocence : it is a delicate exotic fruit—touch it, and the bloom is gone. Tribal social organization in India has to some extent managed to survive, though many acculturated tribal communities have suffered a tragic moral decline. The tolerant influences of Hinduism have enriched tribal religion with a loftier ethic and vitalized it with a nobler conception of deity, but at the same time they have often brought the more dubious

> **'There is no point in trying to make of them a second-rate copy of ourselves'**
>
> ***J. Nehru***

accretions of new gods to be placated and new taboos to be observed.

The contact of civilization has generally had an adverse effect on tribal art and culture. His exquisite taste for design and colour disappears when a tribesman enters a shop in the bazaar. The splendid tribal dress and ornamentation is rapidly abandoned in favour of a parody of western clothing. The tribal languages have shown an alarming lack of vitality when confronted by a system of education in another tongue. In some areas the dance has died out altogether, in others it has become woefully debased. The tribal craftsman does not seem able to maintain his standards before external competition.

The task set by Mr. Nehru, therefore, is no easy one, for it involves several ideals that have rarely been found compatible. The first is to preserve, strengthen and develop all that is best in tribal society, culture, art and language. The second is to protect tribal economic rights. The third is to unite and integrate the tribes in a true heart-unity with India as a whole, so that they may play a full part in her life. And the last is to develop welfare and educational facilities so that every tribesman may have an equal opportunity with his fellow-citizens of the open country and the plains.

India has one advantage in attempting to fulfil this exacting programme. She is starting late. The older British administrators, as we have seen, rarely attempted anything of the kind. This had its disadvantages, but at the same time the tribesmen were on the whole spared the exploitation and degradation that has overcome their brethren in other lands.

Today India is able to approach her task with an informed and enlightened public conscience to inspire her and the findings of the anthropological and social sciences to direct her. And if there is need to protect the tribesmen, India is awake to the need of protecting and helping *all* her many millions of poor peasants. The tribesmen are being integrated into a country that is on the move, that is vitally alive to economic inequalities, whose best men do in fact worship at the altar of Daridranarayana, the Lord of the Poor, which was Mahatma Gandhi's favourite name for God.

(Continued on next page)

A FEAST in Bastar calls for a table service made of large leaves woven together. The diet of Indian tribesmen varies according to their region and their stage of development. The most primitive tribes live on forest products—tubers, fruits and roots—and whatever fish and animals they catch.

THE WATER SUPPLY SYSTEM of the Kabuis in Manipur. A young girl hauling bamboo containers. In general, drink plays an important part in the life of Indian aborigines—especially alcoholic beverages prepared from plants.

INDIA'S TRIBES

No interference in village life and customs

FASHIONABLE WOMEN among the Juans of Orissa wore leaf dresses for ceremonies until recently and, in the past, they wore them every day. Today, however, they have adopted cloth. in general, India's tribal women still make their clothes from local raw materials. On the lofty plateaus of the Himalayas, they wear homespun clothes of wool produced by their own flocks.

(Continued from previous page)

Since Independence, India has done a great deal for her tribes. Nowhere is this more evident than on the North-East Frontier, that great area of over 30,000 square miles of tangled hill and forest, where something like a million tribesmen have lived almost untouched and largely unknown until recent times. Here a special administration of hand-picked officers is extending its activities—the number of administrative centres has risen from 12 to 43 in four years—according to a policy based on the ideas of Mr. Nehru, that with everything possible done for the people, there should be no direct interference in tribal life and custom.

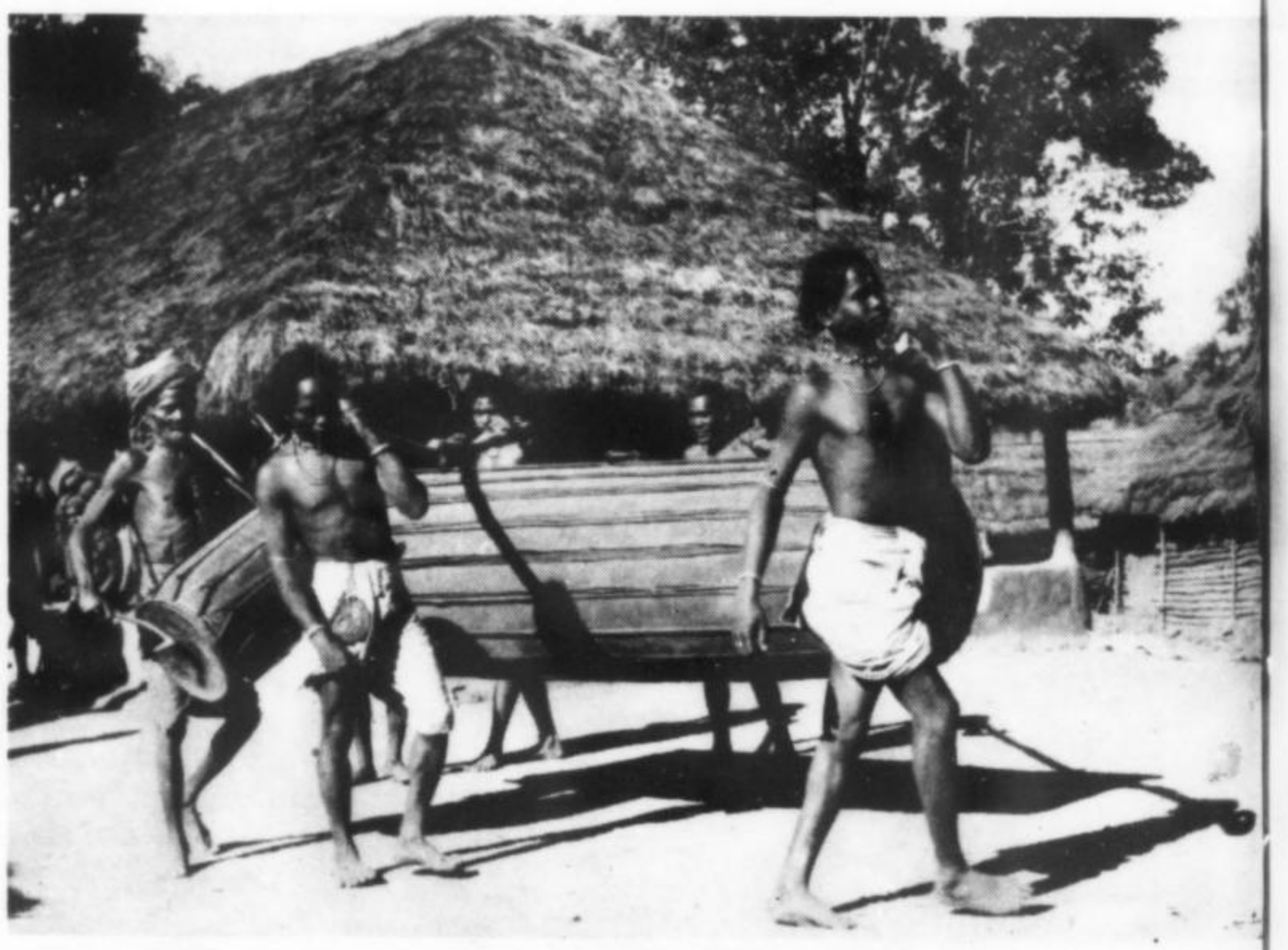
To this, however, there were bound to be certain exceptions. On this frontier the problem of peace has been paramount. As recently as 1942, a former Governor of Assam, Sir Robert Reid, could write that "general orders stopping wars would be impossible to enforce without constant punitive expeditions. The remedy might well be worse than the disease." Yet within the last few years, inter-village warfare has been largely checked and head-hunting has become a thing of the past. By a combination of friendliness, courage and firmness, a method of warfare at once heroic and treacherous, valiant and despicable, has come to an end. And where formerly life was continually disturbed, the people are now able to cultivate the arts of peace.

In this area the method of schooling being introduced is that known in India as "basic education" which, with its emphasis on manual activities and the tribal languages as medium of instruction, is admirably adapted to the needs of simple hill-people. In addition there are many centres for training the tribesmen in a variety of crafts, care being taken that this shall be on lines native to them.

Improvement of agriculture, the first essential for economic improvement, is being energetically pursued, and communications, of vital importance in these wild and lonely hills, are pushing forward. Slavery, which has been practised from times immemorial, is disappearing; the opium problem is being scientifically tackled; the doctor and the vaccinator are extending their gentle offices of mercy to the wildest tribes. And everything is being done in a spirit of friendliness and respect, so that there shall be a minimum of psychological disturbance and no loss of self-reliance or of pride in the classic heritage of tribal culture.

This is an enterprise, at once scientific and humane, of which India may well be proud.

HOMAGE TO A SNAKE GOD is being paid by this Saora shaman in the hills of Orissa as he adds his contribution to a cluster of simple gifts. But more and more tribesmen in India declare themselves as Hindus or Christians—which adds to the difficulty of keeping statistics on their population. Today people are classified according to their tribal origin instead of their tribal religions.



THE LONG DRUM of an Orissa tribal village leaves its shelter on the backs of four Juang youths. It symbolizes the tribal traditions India is determined to preserve within the framework of a campaign against illiteracy. In 1931, only .58 % (one out of 172 persons) of India's tribesmen were classified as capable of reading and writing. "It would be over-optimistic to assume that the situation among tribal peoples has improved", the International Labour Organization has commented in a recent survey. However, an active government effort promises to bear fruit for the future.

LETTERS TO THE EDITOR

Sir,

I have been a reader of The Courier for some years and ask, why not put it on the British bookstalls. I'm sure thousands have never heard of it and it's the paper they really want ! Also why not publish a map or two especially, for instance, when dealing with "ancient places and trade routes" in the Near East, Palmyra etc. A good map illuminates the different geographic facts printed and answers the question "Where is Palmyra?"

Bristol, England. **K. Cryer.**

Sir,

After reading the issue of your magazine on Youth of Japan, I have heartfelt congratulations for you and the staff of the magazine. The first issue on the newsstands was not as interesting and did not serve the purpose of creating a *readable* magazine that ties the world together in culture instead of tearing it apart. The articles about society to those interested in the social sciences are especially interesting as well as the articles on the work that the Unesco branch is doing... Keep up the good work and we will have a more understandable world for tomorrow.

Bert Cohler.
The University of Chicago, U.S.A.

Sir,

Your special enquiry "Japan of Tomorrow" is greatly appreciated. It indicates that if we are understanding and cooperative, Japan's youth will have a real chance in the new world.

Stanley T. Stuber.
General Secretary, The Japan International Christian University Foundation, New York.

Sir,

In your issue 4-5 of 1954, I read on page 46 ("From the Unesco Newsroom") that self service libraries (in Tennessee) have been dubbed "booketerias". In the interests of civilized speech, which should also be the interests of Unesco, may I suggest that they should be undubbed ?

E. B. Wareing.
Bad Godesberg, Germany.

Sir,

On several occasions I have had the urge to write you my reactions to exceptional issues of The Courier. I am so pleased with the current issue, particularly with the well illustrated article on "Prolonging the Life of our Art Treasures" and "Story in Stone". I thought that the article entitled "The Land of Countless Ruins" was of particular value. As a matter of fact, I am filing this particular issue with some educational materials which I am saving for my growing family of four.

Urban H. Fleege, Ph. D.
The National Catholic Educational Association, Washington 6, D.C.

Sir,

The weeks are passing by and since January at least twice a week I ask if The Unesco Courier is in the Information Office of the U.N. in Prague.

I very much regret we are at present not able to subscribe to The Courier. Of course not because of its content ! The only reason is that there is not any bookseller or any office authorized to accept the subscription fee. And that it is not possible to send any money abroad. It is not possible to order any foreign books or any publications from abroad for any individual now. I myself have given up completely when trying to get anything concerning the ascent of Mount Everest one year ago.

Please, do *not* think that there are not people interested in the work of Unesco or in reading The Courier in our country. I am sure that there would be as many keen readers of The Courier, if not more, as in any other country on the globe. Also our people are interested in the education for peace, for international understanding, friendship and real unlimited co-operation as well as in the realization of the Declaration of Human Rights. I am sure that also in our country there would be as many supporters of Unesco work and as many readers of The Courier just as among the biggest proportion known in your publication office. If possible I would order the whole list of publications issued by Unesco until now and very many issued by other specialized agencies of U.N. Not only I—plenty of such orders would be pouring like a lifegiving rain from teachers and intellectual workers from countries such as ours.

When not able to order and to read the issues of The Courier of this year I turn back to the previous years and with unlimited and ever refreshed interest I re-read what I read last year and earlier.

What I would like to recommend is this : Please, do mind the future needs of readers in such countries like our country to give them the opportunity in reading The Courier and other publications issued by Unesco in the future as soon as the free flow of publications for education for peace and international co-operation will be possible.

Please, accept my best thanks for all that has been printed in The Courier and other publications and all best wishes for future work in the spirit of U.N. Our prayers are with you and don't forget also WE are your supporters and also believe that ALL people are the members of ONE family under ONE Father and that happiness and the balance of spirit and mind cannot be established without this sincere open mind—co-operation and mutual respect.

Our hearts don't recognize any exception except of people whose hearts are made from stone. The international co-operation, friendship, free travelling, the realisation of the Declaration of Human Rights in its full meaning and in its broadest sense is for us more important than daily bread and I think it is as necessary as fresh air and the nutrition of our food. I have the full comprehension for people who can't live without these basic values.

Jan Masek.
Prague, Czechoslovakia.

Unesco publications, including The Unesco Courier, can be purchased in Czech crowns through Unesco's National Distributor : Artia Ltd., 30 Ve Smekach, Prague 2. It is hoped that Unesco's Coupon Scheme enabling individuals and institutions to purchase books and publications from abroad in local currencies will soon be in operation once again in Czechoslovakia.—EDITOR'S NOTE.

UNITED NATIONS REVIEW

With the July issue the United Nations fortnightly magazine became a monthly review with a new format and a different approach.

Interesting articles, colourful illustrated features and appraisals of particular developments written by specialists provide the background essential to a grasp of the aims, scope and global activities of the United Nations and its related specialized agencies.

The *United Nations Review* shows how nations work together to solve their own and world problems and thus aids public understanding of international affairs. Published monthly by the United Nations Department of Public Information.

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CORONA PHOTOGRAPHY IS A HUNDRED YEARS OLD
Due to clouds the recent solar eclipse was only partially visible in many countries, but for the first time in history a major effort was made to observe and photograph an eclipse from the air (photo above). In photo taken over James Bay, Canada, (top of page), a burst of light flares out across the moon's rim. This brilliant "diamond ring" effect shows the first peep of the sun's disk as it burst from behind the moon after the eclipse. The striking photo (upper right) of the luminous "corona" or crown of light with long streamers was taken in Khartoum, Sudan, by Dr. W. Jaschek of the Vienna Observatory, during the eclipse of 1952. First successful photograph of the corona, a daguerreotype, (lower right) was taken at Koenigsberg, East Prussia, a hundred years ago. (Photos copyright American Airlines-Hayden Planetarium Eclipse Expedition, Deutsche Presse-Agentur).

In the dark of the sun

by Gerald Wendt

THE eclipse of the sun on the thirtieth of June was an international drama that was seen by the largest audience of all time. Never before has the shadow of the moon crossed an area so large and so densely inhabited. Its path ran from Nebraska in the western United States to Jodhpur in India. It was at sunrise in America, at sunset in India. Yet it was seen almost simultaneously in most of North America, all of Europe, in northeastern Africa and a large part of western Asia. In America its climax was caught by a telescope at the University of Minnesota and was broadcast by television into many millions of homes. Not until 2151 will an eclipse again be visible to so large a fraction of the human race.

Dramatic and mysteriously beautiful it was. But it did not arouse the panic fears of centuries ago when an eclipse was at best a portent of disaster and at worst an attack on the sun god by a black dragon in the sky. The beasts, demons and deities that once peopled the heavens have vanished under the keen eyes of the telescope and the logic of science. They have been replaced by less childish and more inspiring concepts.

The world is now convinced that the motions of the "heavenly bodies" are mechanical and are subject to precisely the same inexorable laws as the fall of an apple or the movement of a clock. This recognition of natural law is, indeed, one of the criteria of civilization. But that does not mean that eclipses of the sun are commonplace or that astronomers have lost interest in them.

Every total eclipse, in which the face of the sun is completely hidden by the moon, is an opportunity to see and photograph what the brilliance of the sun's face usually forbids.

The great observatories of all nations plan for years ahead to find a spot where the length of totality is a maximum, where the sky is most likely to be clear, and that can be reached with many tons of costly and sensitive instruments. The teams of experts with all their equipment often travel many thousands of miles to the location, for the shadow almost never falls on an established observatory.

★

THEN the sequence of operations to be done during the brief two or three minutes of totality are rehearsed on split-second timing—every moment must be well spent. Often when the time comes the astronomers themselves see nothing of the great show, being intent on their instruments and especially on the cameras that provide the permanent record. The results—unless clouds get in the way—justify all the effort and expense.

The eclipse of 1919 is an example. But for it, atomic energy might still be undiscovered. The story goes back to 1905 when the young and unknown Albert Einstein published his theory of relativity. Few people understood it because of its mathematical difficulty. Fewer still thought much of it because it seemed to contradict common sense. It held that at high velocities, comparable to that of light, ordinary standards of distance, time and mass no longer are valid. As a particle approaches the velocity of light its mass increases, said he, so that if it could attain that velocity—which it cannot — its mass would be infinite. Also he claimed that theoretically matter can be changed into energy and energy into matter. Though this is now done every day in the atomic piles and the great cyclotrons (See The Courier for December, 1953), it was then almost unthinkable and could not be tested or proved.

The international drama of the sun's total eclipse

But there was one minor prediction of Einstein's that could be tested by exact measurement. It was that light rays passing through space could be bent by the intense gravitational field of a large mass like the sun. This too was unthinkable according to older theory because gravity acts only on material objects and particles while light was a vibration in the immaterial "ether" that was supposed to fill empty space. But if Einstein was right the light from a distant star, passing closely by the sun, would be curved a bit and would thus reach the earth at a slightly different angle. So the star would seem to have changed its position in the sky. Such an effect could be noticed only at the time of a total eclipse of the sun, when its great light blacks out and the stars emerge from behind it.

Science's most productive half hour in history

By 1919, at the first total eclipse after the close of World War I, astronomers were ready to make the test. During the eclipse the star-field around the hidden sun was photographed. The star positions were then compared with those of the same stars six months later when they shone by night, with the sun on the opposite side of the sky. Careful measurements showed that they had moved. Since the stars do not jump about the sky, the rays of starlight must have been bent by the sun. Einstein was right !

That eclipse, observed by a few scientists on an island in the South Pacific, unnoticed by governments and the masses of mankind, was a turning point of history. For if Einstein was right on this point he was almost certainly right in his basic conceptions of the universe. After these eclipse measurements were published, the scientific world began to take Einstein seriously. One single but solid fact overthrew the age-old theories of the nature of matter and energy, of light and the ether, of space and gravity.

Unlike most mortals, the scientists were ready, whether they liked it or not, to change the ideas they had always held, not only because of Einstein's theory but because of what the eclipse proved. Among the many consequences was the study of very high-velocity particles in the rays from radium, which again confirmed the theory of relativity. Then came the new world of cyclotrons and atom-smashers and, twenty years after that eclipse, the direct conversion of matter into energy which, in 1945 produced the atomic bomb and now generates useful industrial power from the fission of uranium atoms.

★

NO one could foresee these consequences when astronomers prepared for the 1919 eclipse. No one knows what any eclipse may reveal. It is precisely because of this that each eclipse is so important.

While no eclipse permits a study of the actual surface of the sun, the most striking revelation is always the great luminous "corona", or crown of light, which surrounds the hidden sun on all sides and seems to stream outward into space with a faint pearly or greenish light. It may be seen only during the moments of totality. In the June eclipse it extended beyond the sun for a distance more than twice the diameter of the sun itself, almost two million miles.

The cause of the corona is not known, nor is its composition. Its temperature is extremely high—between half a million and a million degrees—and thus much hotter than the surface of the sun itself. The corona does not show the lines of the ordinary chemical elements in its spectrum. This may be because at its high temperature the electrons have been stripped from all the atoms, leaving bare protons and neutrons and probably also unattached electrons. Matter in this state is not known anywhere else.

Apparently proton or electron beams, and perhaps cosmic rays, are ejected from the corona into outer space, some of them toward the earth. A large proportion of the eclipse expeditions from the great observatories devote themselves to the study of the corona.

Closer to the sun there are also brilliant spots of light. They are in fact enormous flames that rise from the sun's surface with explosive speed. These jets are from five hundred miles up to 100,000 miles in diameter, in which an object the size of the earth, only 8,000 miles in diameter, would be completely lost. Within two to fifteen minutes these flames shoot up at supersonic speed to heights of 10,000 miles or more.

In order to study these solar flames and to record them on motion pictures,

Eclipse

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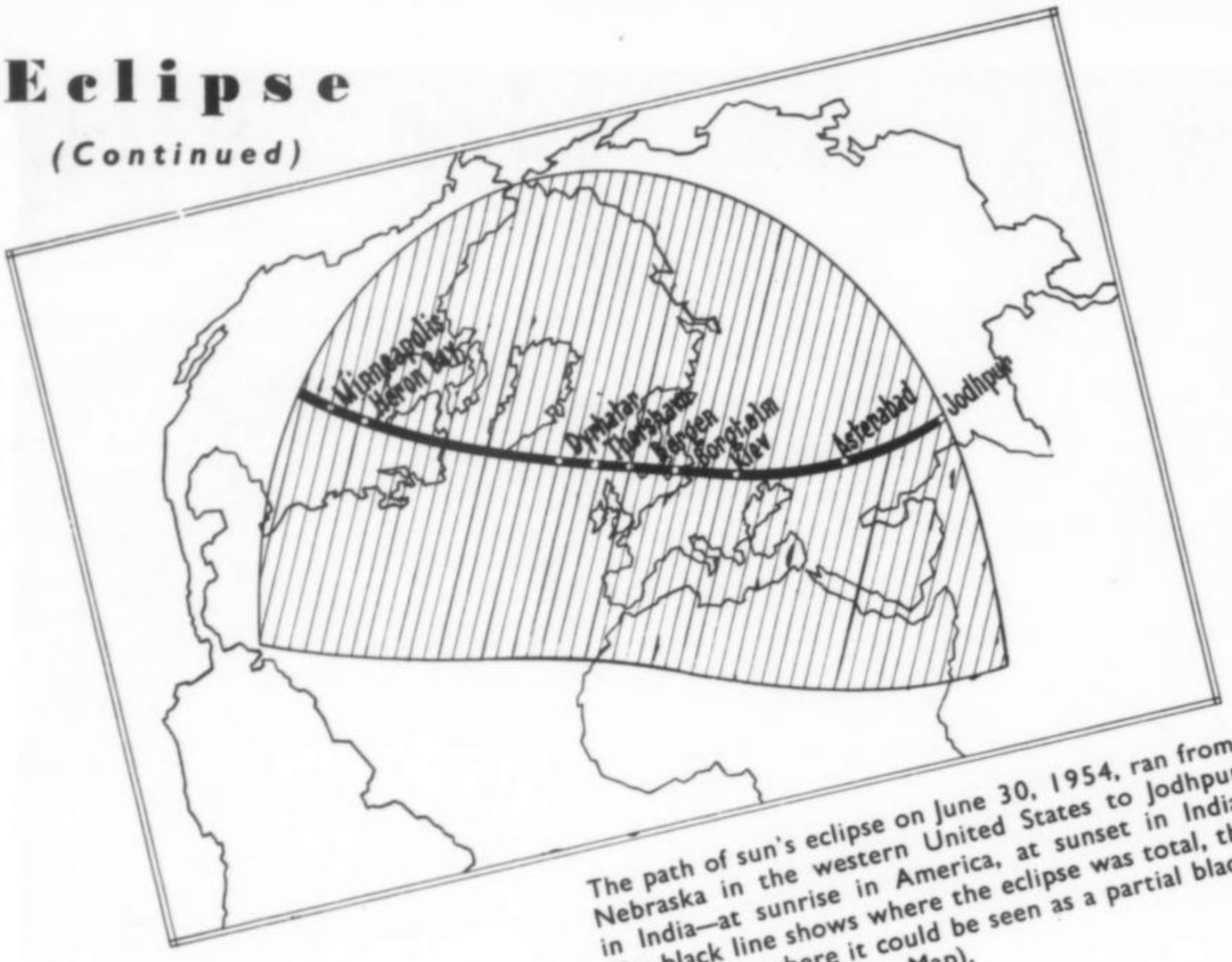


The path of sun's eclipse on June 30, 1954, ran from Nebraska in the western United States to Jodhpur in India—at sunrise in America, at sunset in India. The black line shows where the eclipse was total, the shaded area where it could be seen as a partial blackout. (Unesco Courier Map).

an "artificial eclipse" has been devised in recent years, originally in France. This is done with a coronograph, a sort of telescope which covers the sun's disk with a black plate but permits study of the brilliant flames, precisely as in a natural eclipse. At the High Altitude Observatory maintained by Harvard University and the University of Colorado on one of the high peaks of the Colorado mountains, motion pictures have been taken which show the luminous gas in constant motion, sometimes slow, sometimes fast.

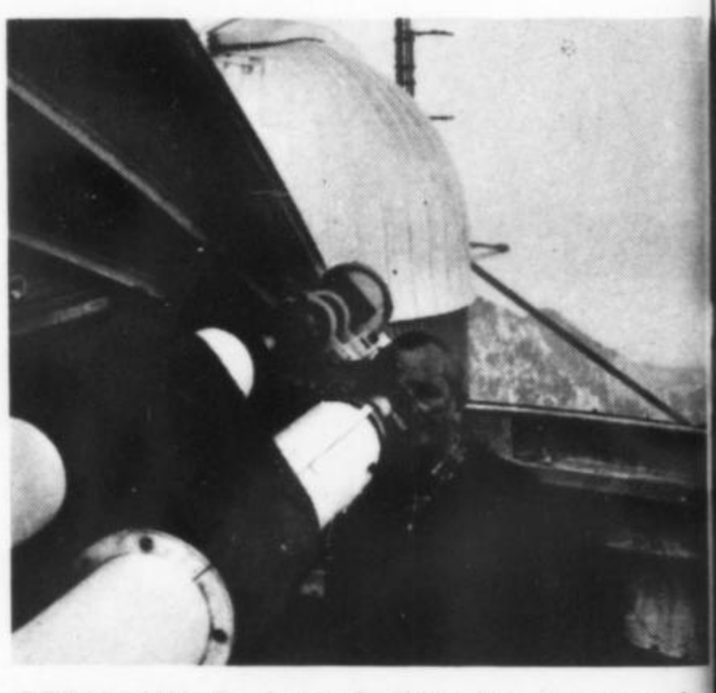
Often knots of gas drop gracefully down toward the surface at speeds of many thousands of miles per hour. Meanwhile other streamers whirl upwards like tornadoes to a height of 100,000 miles, or narrow tongues of gas shoot upwards at the rate of 100 miles a second. Occasionally, a great streamer that has quietly arched up from the surface across a distance of 250,000 miles will explode; the bright arch is lifted at the centre then blown far out into space. The flames seem to be composed of hydrogen gas at temperatures of 15,000 to 30,000 degrees C.

They are probably related to still another luminous phenomenon that is much fainter. This is the "zodiacal light", a luminosity that is so faint that it cannot even be seen at the time of the total eclipse because the corona is almost as bright as moonlight. It can be seen and photographed, however, at the time of the total eclipse if the observation is made at a point where the totally eclipsed sun is beneath the horizon, either just before sunrise or just after sunset.

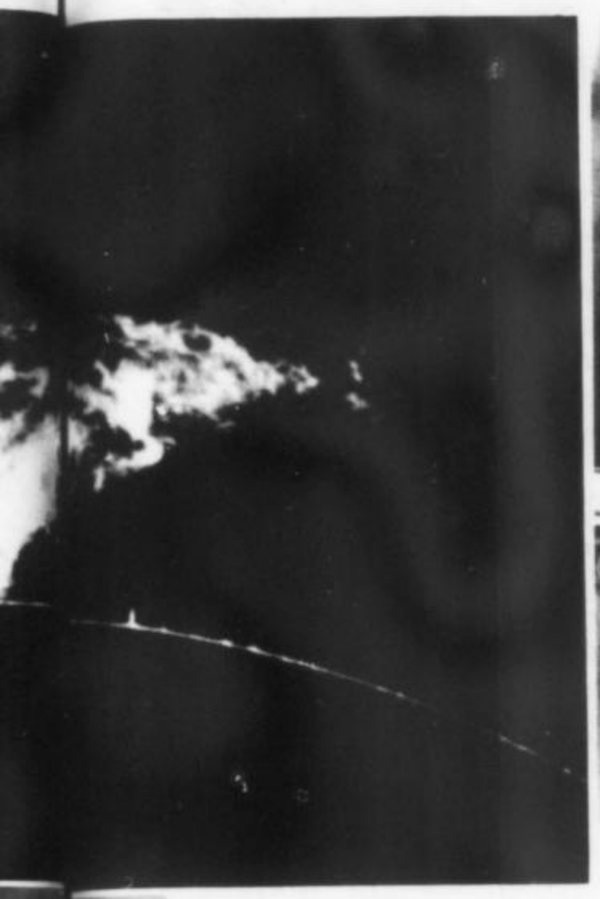
When the earth itself thus blacks out the corona, a long streamer of light seems to extend from the sun many millions of miles in the plane of the sun's orbit. It gets its name from the path of the sun across the sky, called the zodiac. The cause of this light is unknown but its study, done in the total darkness at the precise spot on the earth where the sun will rise in total eclipse, is one of the most intriguing aspects of solar research.

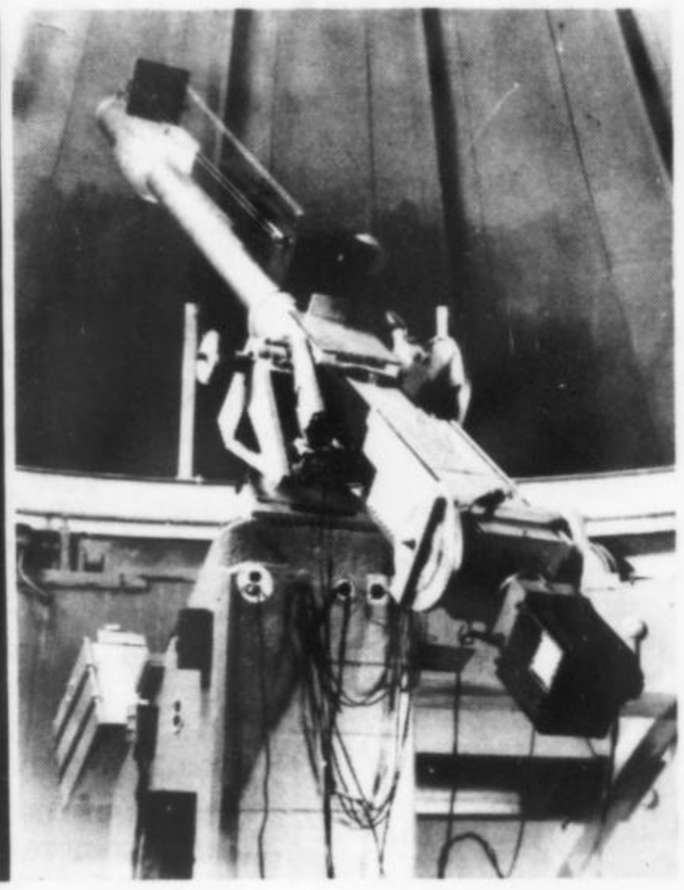
There is one practical aspect of eclipse research, namely the measurement of the size of the earth and of the exact distance between continents that are separated by the sea. The speed of the moon's shadow, moving eastward at an average rate of about 1,700 miles per hour, is exactly known. If then the exact moment of the passage of the shadow is measured at two distant points, a simple calculation gives the exact distance between those points, thus between a place in Europe and one in America. Indeed it permits calculation of the exact size of the earth itself. At the June 1954 eclipse ten observing stations were established for these measurements, reaching from James Bay in Ontario, Canada, to Bandar Shah in Iran, by way of Labrador, Greenland, Iceland, the Faroe Islands to Sweden. But at most of these stations clouds interfered with successful measurements.

The results of observations of the June eclipse will not be known for some time since the photographs will need much careful expert study before conclusions can be reached. It was a disappointing show for most of the expeditions because clouds interfered in Canada and in Sweden, where most American and European observers were stationed. Yet there will always be another eclipse and the curiosity of the astronomers is not likely ever to be satisfied. All present knowledge has been gained from a sum total of only about 30 minutes of totality in all the eclipses that have been observed by modern instruments. It is the most productive half-hour in the history of science.



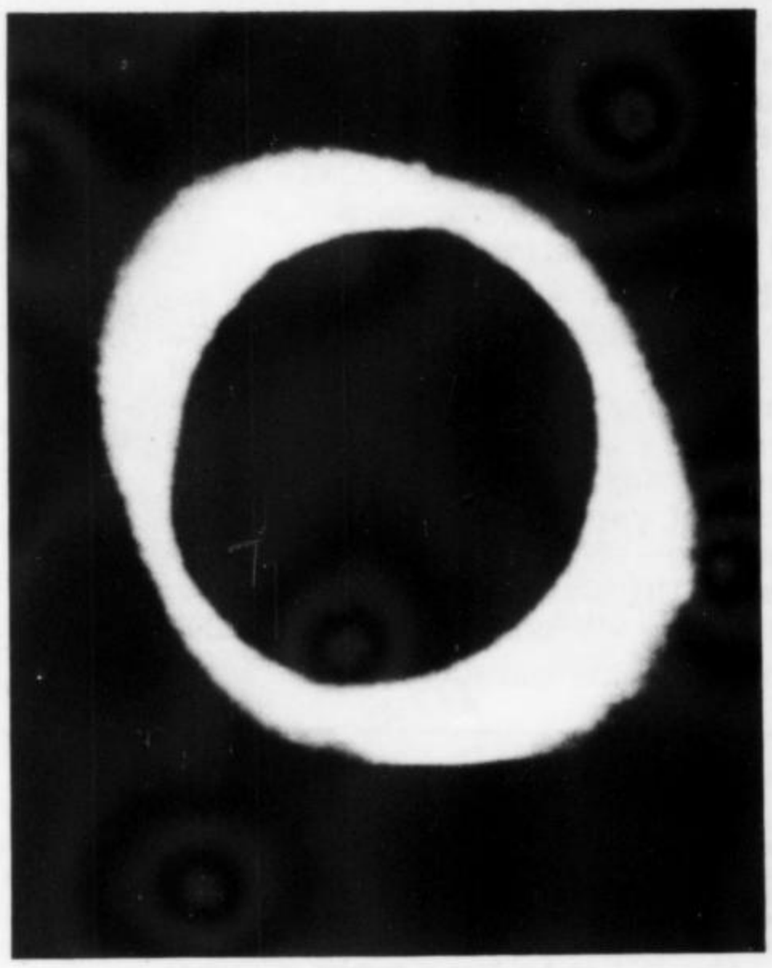
GERMANY: Professor Rolf Mueller, director of the solar observatory atop the 6,000 feet Wendelstein mountain in Bavaria, (above) studied the eclipsed sun in a cloudless sky and described the results of his observations by radio to the whole of Europe. Public interest was intense, and throughout the eclipse zone people craned their necks and like this group in Germany (right) watched the phenomenon through dark glasses. (Photos copyright Deutsche Presse Agentur).

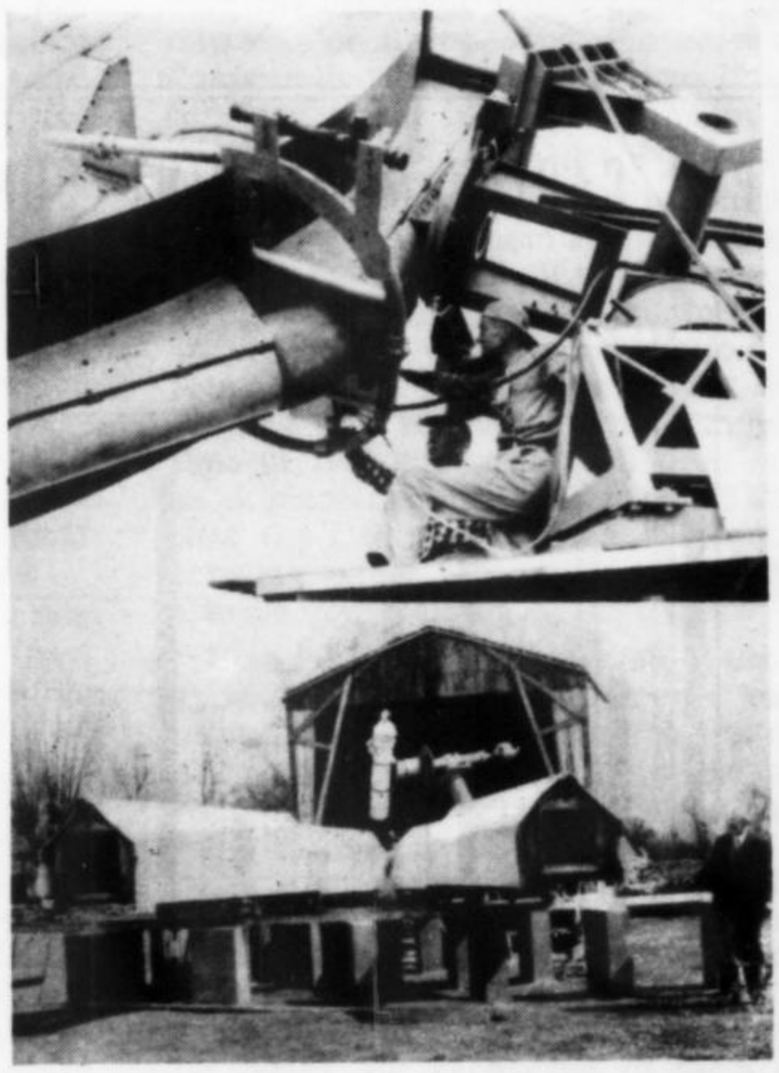




THE UNITED STATES: To study the enormous flames which rise from the sun's surface with explosive speed, scientists use a coronagraph, a sort of telescope which covers the sun's disk with a black plate, thereby creating an "artificial eclipse" and allowing the flames to be photographed. Photo (above left), showing a stupendous burst of hot gases from the sun's surface, was taken with the aid of the coronagraph (above right), which is housed in the High Altitude Observatory in the Rocky Mountains of Colorado, U.S.A. (photo, left). But there are still problems that can only be solved by observation during a natural eclipse. (Photos copyright High Altitude Observatory, University of Colorado).

SWEDEN: The photograph of the completely obscured sun (below) taken at Joenkoeping, Sweden, on June 30, 1954, was telegraphed to the world's press immediately after the eclipse. Elsewhere in Sweden, at Oskarsham, an American expedition set up a 25-ton radio telescope (upper part of photo) to receive and record possible radio signals during the 152 seconds of the eclipse. Below it is the horizontal camera with which the same expedition photographed stars in vicinity of blacked-out sun so as to measure the bending of light in the sun's gravitational field. (Photos copyright United Press).





The world's hungry readers

by *Philippe Soupault*

IT would be difficult to think of life today without paper. Everywhere we turn we find it. In fact, the only other commodity for which humanity has a greater hunger is food.

Because of man's insatiable desire for education and information, paper has attained a priceless value, for what the wire conductor is to electricity, so paper is to knowledge—the medium without which its wide conveyance and use would be impossible.

We might even say that our civilization is based on paper. Without paper for textbooks and exercise books there would be no proper education; without cheap and plentiful paper for printing newspapers it would be difficult to circulate information, and the people in different countries would be ignorant of one another's ideas and activities; without letter paper there would be no normal cultural, administrative and business correspondence.

The greatest demand is for newsprint—the endless miles of paper which feed the world's newspaper printing presses. In a single year the newspapers of the United States and Canada, for example, use enough newsprint paper to make a band fifty miles wide around the earth. In the form of the standard roll this paper would have a length of 13,000,000 miles.

In 1951, the consumption of newsprint throughout the world was 9,460,000 tons (*) according to a study published by Unesco (Nos. 10 and 11 of the Reports and Papers on Mass Communication). During the same year the world used roughly 9,000,000 tons of printing paper (other than newsprint) and writing paper.

But the world's hunger for paper grows larger each year. According to a study made for Unesco by the Intelligence Unit of "The Economist", of London, (No 12 of the Reports and Papers on Mass Communication), the world demand for newsprint will probably continue to increase so rapidly that by 1965 it will be over 15,500,000 tons. The demand for printing paper (other than newsprint) and writing paper will be in the region of 12,500,000 tons.

The basis for these forecasts was an analysis of population and illiteracy trends, the availability of educational facilities, the trend of domestic paper production, and political and economic developments. An evaluation of each of these factors was made for every country and territory.

The single most important fact which these figures bring home is that unless a large-scale effort is made to increase paper production the world will become more and more starved of this vital commodity. That is why Unesco, primarily concerned with the serious effects this would have on educational, scientific and cultural development and on the free flow of information, has been working with the United Nations and the other UN Specialized Agencies to put the facts before the public. Only a world-wide effort in the planning and production of printing and writing paper will meet the increased demand.

What are some of the facts brought out by the Unesco studies? One of the most surprising is the disproportion in paper consumption between different countries. For example, in 1951, while a citizen of the United States "consumed", on the average, 35.1 kilogrammes of newsprint a year and 28.6 kilogrammes of printing and writing paper, an inhabitant of Indonesia was obliged to make do with the meagre ration of 100 grammes of newsprint and 400 grammes of writing and printing paper.

This is no "freak" example for a more general view confirms this lack of balance, and shows the extent to which the per capita consumption of newsprint varies from one part of the world to another. In 1951, for instance, that of the United States was over 350 times higher than those of Eritrea, Haiti, Indonesia and Pakistan.

There have also been some striking fluctuations in newsprint consumption. The United Kingdom which, between 1935 and 1939 was the world's most hungry newsprint consumer had, by 1951, dropped to eighth place, coming below Hawaii and the Bermudas. In the four years prior to the Second World War, "Mr. Britain" got through 26.4 kilogrammes a year, or 1.3 kilogrammes more than "Mr. U.S.A." at that time, but by 1951, he had been reduced to 11.9 kilogrammes per year. However, as this fall in British consumption was due to the severe post-war restrictions imposed by the British Government on the size of newspapers, the relative "loss of

(*) *All the quantities given are quoted in metric tons and in round figures.*

Philippe SOUPAULT, a French writer and journalist, was formerly editor of "Excelsior" a daily paper, and a founder (with André Breton) of the surrealist movement. In 1933 he gained the Strassburger Prize, awarded for the best article on United States affairs published in the world press. Until 1940 he was director of Radio Tunis and in 1945 he headed the foreign broadcasts service of the Radiodiffusion Française. Since 1951 he has been a member of Unesco's Division for Improvements of Means and Techniques of Communication (Press Section). He carried out a Unesco study into Press, Film and Radio resources in thirty-four countries and territories.

PER CAPITA NEWSPRINT CONSUMPTION. PRINCIPAL CONSUMING COUNTRIES

appetite" can be considered as abnormal and unlikely to last indefinitely.

As a matter of fact, if we disregard those countries in which the use of paper has been restricted by government order, we see that the consumption per head was almost everywhere higher in 1951 than it was before the war, despite the difficulties of obtaining supplies. This was true not only of underdeveloped countries where the press has expanded as illiteracy has been reduced and education spread, and where per capita income has increased, but also of very highly developed countries, such as the United States, whose economic activity has increased still further and which have less difficulty in satisfying their needs.

The biggest appetite

THE world's appetite for paper is thus growing with amazing speed. In 1928, the world consumed 6,130,000 tons of newsprint, and in 1951 9,460,000 tons, which means that, in spite of the economic depression which began in 1930 and the effects of the second world war, the consumption of paper went up, on the average, by 145,000 tons a year between 1928 and 1951. In the United States of America which uses more paper than any other country, the consumption of newsprint increased nearly fourfold between 1915 and 1951, and doubled between 1933 and 1951. In 1951, 120 countries each consumed more than 50 tons of newsprint. These 120 countries were distributed as follows: 26 countries in Africa, 22 in North and Central America, 12 in South America, 26 in Asia and 33 in Europe, besides the U.S.S.R.

How can this enormous demand—which is getting bigger from year to year—be met? While all the countries in the world which are able to purchase enough to meet their needs are consuming larger quantities of paper, a relatively small number of countries are producing this commodity. In 1951, only 36 countries manufactured newsprint, 3 in North America, 4 in South America, 7 in Asia, 20 in Europe, besides the U.S.S.R., and 1 in the South Sea Islands. The world production of printing paper (other than newsprint) and writing paper is much less centralized than that of newsprint. It is estimated that in 1951 42 countries or territories each produced over 50 tons of these two types of paper.

Threat to literacy

BY far and away the largest paper producer is Canada. It has held this position since 1928, and from 1932 to 1945 turned out a larger and larger proportion of the total world output. It was the only country whose production in 1951 showed a considerable increase over pre-war figures. Between 1945 and 1951 this figure rose from about 3,260,000 tons per year to rather more than 5,000,000 tons—an enormous quantity representing 52.7 % of the total world production.

In 1951 when Unesco began to alert public opinion to the dangers of a newsprint shortage, the situation was already hampering the fight against illiteracy in many countries because of the difficulty of importing paper for primary and secondary school textbooks and notebooks. It had also forced some newspapers to close down.

"DEVOUR BOOKS" this was the title of a recent poster published by the National Syndicate of French Editors showing the French actor Gérard Philipe "devouring" a pile of books.

At that time, however, it was not known how enormously the world demand was going to increase. Will the existing and planned production resources be able to meet the ever-increasing demand? The equipment of large paper mills involves heavy capital outlay and a relatively long study of organization and building plans.

Of course the growth in production and consumption noted over the past 25 years was an indication that a large increase was to be expected in the future. But other factors such as the spread of education, the new literacy campaigns undertaken in many countries, the continual growth of the world's population and the increase in the real per capita income of its inhabitants had also to be considered.

Unesco therefore set out to make at least an approximate assessment of man's future needs in paper. In co-operation with the Food and Agriculture Organization, the Economic Commission for Europe and the Economic Commission for Latin America, Unesco collected world information about the development of the paper problem.

It also commissioned the Intelligence Unit of "The Economist" which specializes in economic investigations on an international scale, to work out estimates of the consumption of printing and writing paper for each country and territory. These indicate that in 1965 the world will need some 65 % more newsprint than in 1951 and that the rise in the demand for other printing paper and writing paper will also be considerable.

Here is a hunger which must be appeased. Lack of paper to carry information means lack of the awareness, the interest and the personal responsibility that play such a large role in sound citizenship. Lack of paper for textbooks deprives children and adult illiterates of the means of learning, and limitation of education penalizes all forms of progress. The availability of paper—for newspapers, for books, for exchanges of facts and ideas—is therefore a matter of world concern and world action.

TEACHING SCIENCE WITH ODDS AND ENDS

by

Daniel Behrman

INGENUITY AND A SOAP PLANT are the main ingredients of these molecular models Elvira Salazar is demonstrating to two pupils in a Lima secondary school. The round pips of the soap plant and a few lengths of iron wire are all that is needed for this introduction to the atom. Miss Salazar is only one of a team of six young Peruvian chemistry teachers working with Dr. Jose Martinez Cros, a Spanish scientist sent to Peru on a Unesco technical assistance mission. Faced with a shortage of teaching equipment—and currency—they decided to devise their own.

In a freshly-painted room in the Teresa Gonzalez de Fanning School in Lima, Peru, Elvira Coloma, a fourth-year student, was preparing her laboratory table for the production of ammonia, the day's experiment in inorganic chemistry, in this secondary school's programme.

First, she half-filled a test-tube with caustic soda solution, measuring it by eyedropper from its flask, a syrup bottle. She dropped three small lumps of ammonium carbonate into the solution and plugged the test tube, using a cork with a hole drilled through its centre. On top of this cork, she fitted another test tube and then placed the whole affair on a wooden ring stand, clamping the test tubes into position with a clothes peg.

Elvira lit a match to her laboratory burner, an ink bottle with a cotton wick, soaked in alcohol, rising through a hole punched in the bottle's metal cap. As she slowly heated the solution, bubbles of gas formed and rose into the upper tube. She blew out the flame and removed this tube, stopping it with her finger. She turned it right-side-up and filled it with water from a wine bottle with an eyedropper spout in its cork. Then she sniffed. A strong smell of ammonia came from the tube. To complete her test, she added a drop of phenol-phthalein. When the colourless liquid came into contact with the ammonia, it turned pink. The experiment was over and Elvira began to write in her note-book.

Instead of watching a passive demonstration by a teacher or simply memorizing a few passages from a chemistry test, Elvira and her eighteen classmates had done the experiment on their own. Their laboratory was an ordinary classroom not even equipped with gas for Bunsen burners nor with water outlets for each laboratory bench. But to do their experiments Elvira and her friends had a kit of basic apparatus, a "minimum laboratory" — quite adequate enough to conduct all of the organic and inorganic chemistry experiments in a secondary school science course. Its total cost — 12 soles (60 cents or 4/-).

This "minimum laboratory" has been developed by Dr. Jose Martinez Cros, a Spanish scientist who took leave in 1951 from the Higher Council of Scientific Research in Madrid to join a Unesco technical assistance mission working with Peru's Ministry of Education on the training of science teachers.

A nervously energetic man full of drive, Dr. Martinez Cros built up this laboratory with the help of six young Peruvian chemistry teachers. Beginning in 1952 they had studied with him intensively to become a team of missionaries in

modern science teaching. In their own work, they conducted experiments with precision apparatus supplied by the Peruvian Government and installed in the Fanning School while it was still the Pedagogical Institute of Lima (it became a girl's secondary school in 1953 when Peru opened its new Central Normal School).

Precision apparatus was essential for these refresher courses, but it was expensive. And it was no answer to the problem of introducing experiments by individual students in the average school. Another method had to be found—otherwise chemistry would remain a dull textbook subject or, at best, a demonstration course.

The Peruvian teachers and Dr. Martinez Cros decided to follow a line already traced by science teachers on United Nations technical assistance missions for Unesco in Indonesia, the Philippines and Thailand. In these countries, school experiments in chemistry and physics had been conducted using equipment built out of anything at hand — from electric light bulbs to discarded telephones. However, Dr. Martinez Cros and the Peruvian teachers did their own research. Dr. Martinez Cros had not brought any prefabricated ideas into Peru from Spain, nor was there any magic Unesco formula for teaching science without apparatus.

In the "minimum laboratory" they built up in Lima, two points have been stressed — simplicity and precision. "Homemade apparatus is as good from a pedagogical viewpoint as expensive equipment", Dr. Martinez Cros told me. "It has one great advantage—if the student is interested in chemistry, he can duplicate it at home and make his own experiments."

In terms of precision, the group decided that, while an electric light bulb with its metal base filed off may serve as a laboratory flask for primary school lessons, it was not adequate for experiments at the secondary level. Therefore, a set of 16 pyrex test tubes is among the three items in the "minimum laboratory" which must be purchased from a chemical supply house, the other two being a glass funnel and a few feet of glass tubing.

Using the versatile electric light bulb

THE test-tubes go into a home-made wooden rack with numbered corks to identify their contents. Another rack is filled with syrup bottles containing the six reagents needed for secondary school chemistry experiments — ammonium hydroxide, caustic soda, sulphuric acid, nitric acid, hydrochloric acid and phenol-phthalein. In the interest of safety and economy, they are corked with eyedroppers. Students are never required to pour an acid.

The wooden ring-stand is a basic feature of the laboratory. It consists of a flat wooden base with a dowel nailed to the bottom. A horizontal slat of wood is attached to the dowel by clothes pegs, permitting it to ride up and down or to be rotated. To this moveable slat are nailed two more clothes pegs, one for holding test tubes vertically and the other slanted for experiments in which the test tube must be kept at an angle to protect the student against escaping acid.

The laboratory burner is a descendant of the ink bottle burners used by Unesco technical assistance workers in Asia. Then there are sundry accessories — test-tube holders of scrap metal salvaged from shipping crates, waste jars consisting of wine bottles with their upper halves filed off, pieces of window glass to handle products which might harm a wooden table; a heating pan devised from a bottle cap with a handle of bent wire soldered to it, small test tubes made from glass aspirin tubes (better than the factory-made article in some cases because their flat bottoms make it easier to calculate volumes), boiling flasks made from the bottom half of the versatile electric light bulb, and a length of electric wire and two dry cells for carrying out experiments in electrolysis.

The key to the laboratory is the use of materials found in Peruvian homes or available in shops at low cost. For example, models of molecular structures are made with their atoms represented by the hard round pips of a Peruvian soap plant sold on the market for 3 cents a pound and linked together by pieces of iron wire. Molecular models made from the soap plant are just as good for teaching purposes as those built from imported kits which cost as much as $ 80.

Dr. Martinez Cros has gone much further in his laboratory for training teachers. Although much of its equipment was made in the Fanning school, it is at a much higher level—a prototype of a rational, low-cost laboratory for a normal school. Each table is equipped with bases inserted flush into its surface to take metal ring stands, merely lengths of pipe threaded at one end to screw into the tables. Gas-operated Bunsen burners are used here and they are prepared from lengths of 17 mm pipe equipped with jets used by Peruvians for their kerosene stoves. The tables are of wood, covered with an anti-acid paint. Wood is cheaper than tile in Peru and it reduces the breakage of glass equipment.

Scales from thread, corks, wood and needles

MOST of this equipment is now manufactured in the school by Felix Jacinto Bravo, a handy laboratory assistant whom Dr. Martinez Cros trained in laboratory glass blowing. While no attempt is made to produce complicated precision apparatus, the laboratory meets its own needs in tubing and can handle repairs of broken equipment. Training in glass blowing is included in the course which Dr. Martinez Cros conducts for chemistry teachers.

A similar job of training teachers and improvising apparatus was carried out next door to the chemical laboratory by Dr. Raymond Zuckermann, a French physicist who completed a Unesco mission in Peru in 1953. While Dr. Martinez Cros was conducting experiments with his six chemists, Dr. Zuckermann was working with six physics teachers.

There was one important difference in their tasks. Chemistry experiments require only basic equipment, but physics demonstrations need different apparatus for virtually every principle to be proven. Dr. Zuckermann and his students were confronted with experiments requiring equipment far too costly for the budget of an average school. They decided to go ahead with what they could find.

The results are in the physics laboratory of the Fanning school, a house of ingenious marvels. In this laboratory, scales sensitive to 2 milligrams are produced out of thread, corks, wood and needles (the scales are so sensitive that they cannot be operated with a window or a door open in the laboratory). An old Model T Ford magneto and a magnifying glass have been transformed into a mirror galvanometer. A discarded phonograph motor plays a major part in an apparatus for demonstrating the law of falling bodies.

One of the most fascinating of these instruments is the laboratory's extensometer, a device for measuring the expansion of metals when heated, and contrived from wood, paper and wires. When a current is passed into it to heat the metal being tested, the expansion is indicated by a wooden needle registering on a gauge inked out on paper. Exact measurement of this expansion requires exact knowledge of the temperature to which the metal has been heated. This is determined with surprising simplicity: a piece of wire is attached to the metal under test by a lump of sulphur and, as soon as the sulphur melts, the experimenter knows how hot he has heated the metal — because he knows the melting point of sulphur.

Outgoing fellows incoming experts

IN this laboratory, as in the chemistry room of Dr. Martinez Cros, delicate equipment is used only in working with teachers. Here, too, simplified models have been devised for use by individual students in physics classes. Both of the laboratories are being moved out to the new Central Normal School at Chosica, an ultra-modern structure basking in year-round sunshine.

In Peru the 25 miles from Lima to Chosica equal the climatic difference between New York and Miami in the United States or Paris and the Riviera in France. Lima has a cool climate with overcast skies, the gift of the Humboldt Current

'Minimum Laboratory'

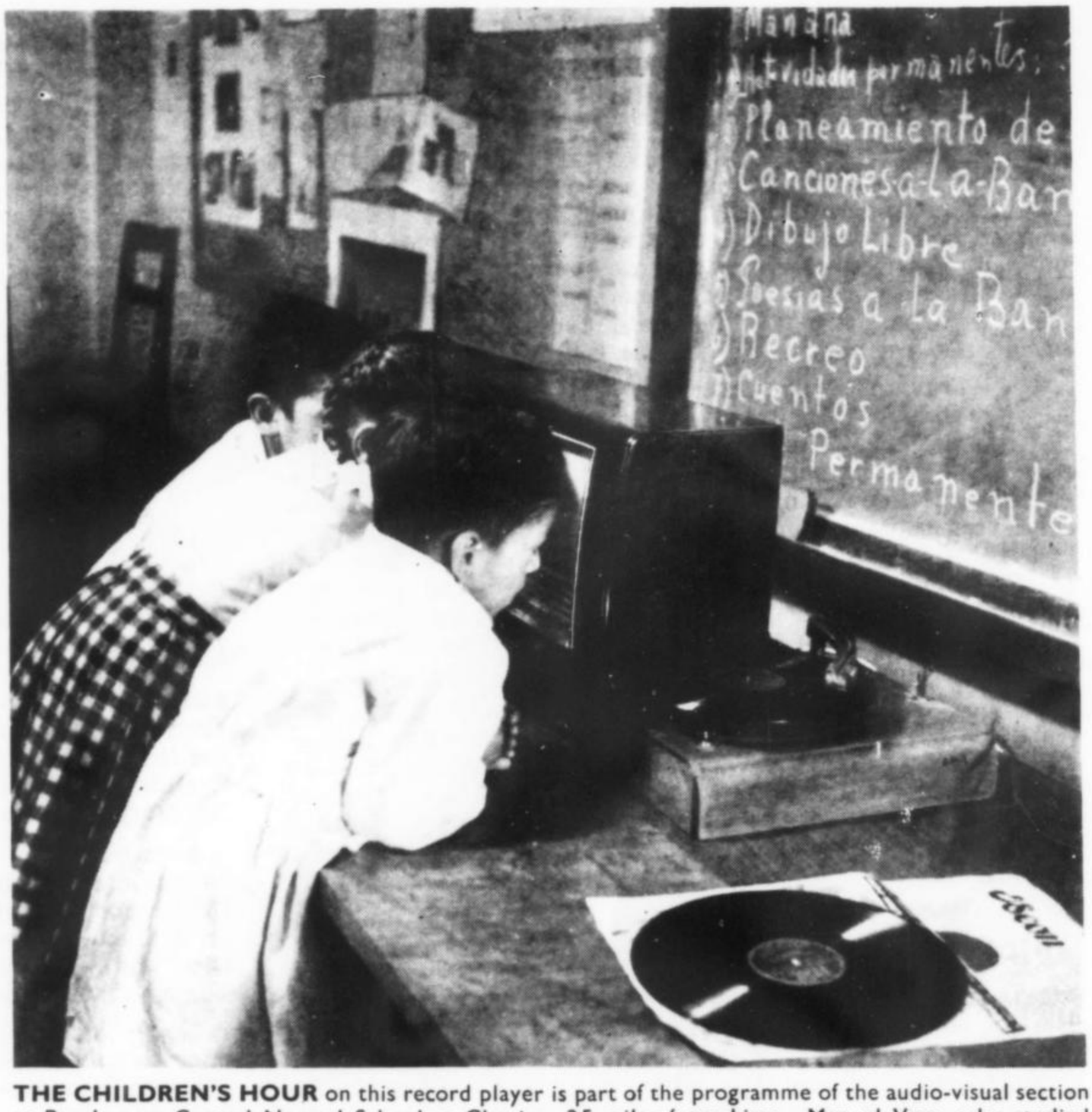
(Continued)

on the shores of the Pacific. Chosica, inland in the valley of the Rio Rimac never sees a cloud.

The new normal school now has an enrolment of 280 future teachers. Besides developing the science laboratories, technical assistance has been able to play a part in the school by providing Unesco fellowships for two vocational education teachers to study at the University of Puerto Rico. The director of the school's audio-visual section, Manuel Vera, also studied for a year at the University of Wisconsin in the United States under a technical assistance fellowship and he is introducing films, film strips, records, charts and other teaching aids in the normal school's laboratory classes.

This method of complementing incoming international technical assistance workers with outgoing Peruvian fellows has the unqualified approval of such Peruvian education leaders as Carlos Teixeira, the country's director of technical education, who believes that "the fellow is as important to Peru as the expert."

Mr. Teixeira is at the head of a mushrooming technical education system which is placing heavy demands on Peru's available supply of teachers of science and trade. From 1948 to 1952, the number of students attending industrial, agricultural and commercial schools jumped from 9,500 to 20,000. The vocational training department in the Central Normal School is the first of its kind set up in Peru specifically to train teachers of vocational education to staff the classrooms which are being built throughout the country.



THE CHILDREN'S HOUR on this record player is part of the programme of the audio-visual section at Peru's new Central Normal School at Chosica, 25 miles from Lima. Manuel Vera, who studied for one year at the University of Wisconsin in the United States under a Unesco technical assistance fellowship, is now director of this section of the school.

These teachers are badly needed. Early in 1954 among those in Peru's 34 vocational schools, there were only 44 who had graduated from a normal school, although Mr. Teixeira hoped to double their number before the end of the year. "We are giving technical school teachers the same privileges and the same salaries as academic teachers", he explained. "This is a fight to dignify technical education so that we can attract good teachers—and it is going on elsewhere in the world as well as in Peru."

"Economic progress brings up the old question of the chicken and the egg", Mr. Teixeira told me. "Should a country train skilled workers first or wait until its industries are desperately short of labour? We are now going ahead with the training of workers and that is why we need more and better teachers. We believe that Peru will not stand still."

EVERY EXPERIMENT required in a secondary school chemistry course can be performed with this "minimum laboratory" put together by Dr. Martinez Cros, which can be used even in rooms without water or gas facilities. Here, two pupils are conducting an experiment in the production of ammonia.

A BREATH OF AIR is enough to disturb these scales, sensitive to two milligrams though they consist of wood, corks, needles and string. Here, Carmen Cassano, a member of the team of physics teachers chosen to work with the Unesco mission, is seen here testing a scale at the end of her "production line"

EXPANSION OF METALS when heated by an electric current can be measured with this home-made "extensometer" operated by Mesias Huaringa, another member of the team of physics teachers. The paper tube around the wire prevents it from being cooled by air currents during the experiment.

From the Unesco Newsroom...

BETTER RURAL EDUCATION: Most people in the world today live on crops they grow themselves and spend their lives in rural villages or isolated farms. Their educational problems are more difficult and imperative than those of city dwellers. To study these special problems and to discuss ways of solving them, delegates from thirty countries met recently in Denmark at an international seminar organized by Unesco on adult education in rural areas.

★ **PROTECTING NATURE:** *As the world's population increases by* 25,000,000 *every year, man must be taught how to make the best use of nature's resources on which he is completely dependent. This is the aim of the International Union for the Protection of Nature founded in* 1948 *under the sponsorship of Unesco. At its fourth annual assembly held recently in Copenhagen, the Union discussed methods and means of publicity which should be used to enlist public aid in nature protection work. Two other subjects given special attention were the protection of Arctic animals and the effect of modern insecticides on mammals, birds and insects. (See Unesco Courier N°.* 4/5, 1954, *for an article on the protection of nature).*

THE WORLD WARMS UP: There is definite evidence that the Northern Hemisphere is becoming warmer, according to M. Jean-René Rivet, deputy Secretary-General of the World Meteorological Organization. M. Rivet said that as a result of this, improved agriculture was now possible in northern latitudes of Scandinavia and Greenland, where crops have never previously been grown in recorded history. (See Unesco Courier N° 2, 1954, for an article on the world's warmer weather: "It Was Colder When We Were Younger.")

★ **FOOD AND PEOPLE:** *In* 1953 *and again this year world food production managed to stay ahead of population increases, reports the Food and Agriculture Organization (FAO). Agriculture production has risen by nearly three per cent a year over the last four years, while the estimated population increase has been about one and one-half per cent each year: But even though the total world food output may now be adequate, uneven distribution makes for surpluses in some areas and great shortages in others*

POLL FOR PARENTS: The City of Denver, in the United States, finds out what citizens think about its school system by taking a public opinion poll. The first, taken in 1950, showed that 49 per cent of the people felt the school system was doing a "good job". By last year's poll this approval had risen to 59 per cent.

★ **RURAL RADIO LINKS:** *To overcome one of its biggest development problems —lack of communications both between its east and west territories and between its isolated villages—Pakistan is making great efforts to extend its radio links. New broadcasting and relay stations are being built and radio is now being used in conjunction with a nation-wide campaign to educate adults in remote villages. At present* 600 *community radios are being distributed in villages around the relay transmitting stations of Chittagong and Rajshahi in East Pakistan. The Pakistan Government has purchased* 3,000 *for distribution to rural areas. A new plan for training telecommunications personnel is also under way in Pakistan. Besides a Central Training Centre already in operation, three regional schools will be set up at Karachi, Dacca and Lahore to train technicians. The Lahore school will be opened at the end of the year, and the Dacca and Karachi establishments may start working early in* 1955.

BLACKBOARDS IN DISFAVOUR: A "development group" studying school building for the British Ministry of Education has recommended that because of its effect on classroom colour schemes, the traditional blackboard should be replaced by a "chalkboard" in such colours as red, brown, green or grey. Stressing the importance of a school building's colour scheme, the group considered it should give a positive rather than a neutral effect.

INTERNATIONAL STUDENT CENTRE: The first international student centre in Egypt has been set up with prefabricated units provided by the World University Service, on the Cairo University grounds at Giza. The Universities of Cairo and Heliopolis have given money towards its construction and provided furniture. The centre will form a social meeting place for students of all nationalities at Cairo's various universities, and will give convalescent students a chance to regain their health under satisfactory conditions.

★ **SPEEDIER SCIENCE SHIPMENTS:** *The recently announced Unesco scheme to aid the international exchange of delicate scientific measuring instruments among science laboratories has already received support from thirty-four member states. Seventy scientific laboratories have been named as participants. Under the plan, measuring instruments would be assured safe and speedy transit when being shipped from one country to another. Each would carry a distinctive Unesco symbol enabling customs clearance to be made at the sending or receiving laboratory rather than in customs sheds, thus avoiding damage or delay. The plan is part of Unesco's general programme for the free flow of information.*

WORLD FACTS: More than 230,000,000 radio sets are in use throughout the world today, which means there are 95 for every 1,000 inhabitants. The United States has about one half of these radios, of which some 25,000,000 are fitted in automobiles. These items of information are given in the second edition of "Basic Facts and Figures", a publication in which Unesco has collected world-wide information on illiteracy, education, libraries, museums, books, newspapers, newsprint, film, radio and television. The booklet also reveals that by September 1953 twenty countries were broadcasting regular television programmes. The United States had the largest number of TV receivers — 25,100,000 — and the United Kingdom had 2,900,000 with an increase at the rate of about 70 per cent a year.

★ **SCHOOLS AROUND THE WORLD:** *Dutch boys and girls are hearing what school is like for young people all around the world—from Alaska to Indonesia and from Japan to Liberia—through a series of special programmes being broadcast by a Dutch radio corporation (VARA). Material for the programmes was obtained by the Unesco Centrum of Nederland from Unesco National Commissions in* 13 *countries.*

★ **PAPER PROBLEM:** *The problems of establishing new pulp and paper industries will be discussed in detail at two international conferences to be sponsored by the Food and Agriculture Organization later this year. In October the problems of paper production in Latin America are to be discussed at a meeting in Buenos Aires. In December the question of pulp production will be an important item on the agenda of the Fourth World Forestry Congress at Dehra Dun, in India.* *(See page* 44 *for article on the world's growing hunger for paper).*

SCIENCE GOES ON TOUR: Since 1950 four science exhibitions prepared by Unesco have been seen by over 1,200,000 people in 26 countries. Making use of graphic displays, photographs and demonstrations that could be operated by the visitors, the exhibits have overcome language barriers. They have helped people to understand the world they live in and have brought home simple, vital facts. After people have looked through a microscope at a drop of pond water, and have seen a million tiny organisms squirming and darting about, for instance, they are ready to believe doctors who warn that such water is dangerous to drink. Exhibits have covered physics and astronomy, the human senses, the use of synthetic materials in modern life and the instruments we use to study the universe, from atoms to stars.

★ **UNESCO ON TV:** *For the last two years, Professor Luis Amador Sanchez, of Sao Paulo University, Brazil, has presented a weekly television show on Unesco's work over Sao Paulo's television station. Senor Amador Sanchez illustrates his telecasts with views of leading historic monuments and universities. He also shows Unesco's technical assistance work, as well as ballet, theatre and music performances. On an average, three hundred thousand people in the Sao Paulo region are watching this Unesco show on their sets each week.*

MUSEUMS IN THE METRO: People waiting for underground trains at the Opera Station in Paris can see a novel and fascinating exhibition assembled by the French Ministry of Education. Artistically arranged window panels show samples of the treasures contained in various French national museums in and around Paris. Beautiful oriental porcelain suggests the wonders of Asiatic art on display at the Guimet museum. Quaint household utensils of bygone days evoke the curiosities at the Museum of Decorative Arts. The exhibition is designed to introduce the public to lesser-known Paris collections as well as to famous museums like the Louvre.

WILLIAM HODSON

Unesco has lost a leading member of its staff through the death of Mr. William Hodson, Head of the Bureau of Programme and Budget. Mr. Hodson was one of 28 passengers killed in an airliner crash near Shannon, Ireland, on September 5. An American citizen, Mr. Hodson was born in Minneapolis on March 25, 1921. Educated at Harvard he later entered government service in Washington. He joined Unesco in March, 1947, as Executive Assistant to the Deputy Director-General. In March 1951 he was appointed to the post he held at the time of his death. Mr. Hodson leaves a widow and three children.

From the Unesco Newsroom...

★ **FLYING CLASSROOMS:** *Schoolchildren in Birmingham, England, now learn geography in flying classrooms. Armed with maps and accompanied by a teacher, groups of them travel to London three times weekly on the regular airline flights. Aided by sheets from the pilot's log they can identify landmarks and cities along the route during their aerial geography lesson.*

ALL ABOUT BRAILLE: Unesco has just published "World Braille Usage", a basic reference work which recounts the history of Braille and presents a survey of the efforts made towards Braille unification. The author of the book is Sir Clutha Mackenzie, who was Unesco's consultant between 1949 and the end of 1951. He is Chairman of the World Braille Council. In a foreword to "Braille World Usage", Helen Keller writes that in this book "a magnificent monument has been raised to Louis Braille, from whose life-dream has been wrought the mental and spiritual emancipation of the blind in every land."

★ **TUITION BY TAPE:** *Groups of students at Constantine (Algeria) are now following examination courses at Algiers University by tape recordings. These recordings of the courses of the faculty of letters in preparation for the first degree, secondary teacher's certificate and the fellowship examination for teachers of English are regularly made and sent each week to the Constantine students.*

LATIN AMERICAN CLASSICS: A historical novel Manuel de Jesús Galváns *The Cross and the Sword* has been chosen by the Indiana University Press, in the United States, as the first of a series of Latin American classics to be published under the sponsorship of Unesco and the Organization of American States. The setting of the novel, translated by the English author and translator, Robert Graves, is in the West Indies shortly after Columbus's voyages. One of the central characters is a famous historical figure, the Spanish missionary Bartolomé de Las Casas who fought to protect the Indians from the violence of ruthless Spanish explorers and soldiers. Manuel de Jesús Galván, journalist, diplomat and educator, was born in Santo Domingo in 1834 and died in 1910. *The Cross and the Sword* is the first publication in English of his only novel, originally issued in 1879 as *Enriquillo*.

Through the Latin American Classics Series, the Indiana University Press hopes to introduce and spread knowledge of representative works of Latin American literature and thought among English-speaking people in the interest of better international understanding. Other Latin American classics planned in the series are *Selected Writings* of José Marti, translated by C.A. Rossner; and *Anthology of Mexican Poetry* translated by Samuel Beckett; *The Last Days of the Colonial Era in Upper Peru* by Gabriel René Moreno; *Royal Commentaries of the Incas* by El Inca Garcilaso de la Vega; *Travels* by the Argentine writer and patriot, Domingo Faustino Sarmentio; *The Boarding School* (O *Ateneu*) by Raul Pompeia and a number of anthologies of the social and political thought of Latin America.

★ **SOUTH SEA STUDENTS:** *Every year since 1945 some 15 young South Sea Islanders have won scholarships from their homes in the Pacific to study at New Zealand Colleges. Aged between 12 and 15 years, they come from Niue, Western Samoa, Ratonga and other nearby islands. Scholarships granted under this experimental scheme enable young islanders to continue their studies on a higher level and become doctors, nurses, engineers, or teachers. Others are trained in a trade or craft. This year six island students enrolled at a New Zealand University, two for courses in law, the others to study engineering, commerce, agriculture, and the arts. Eight were students at teachers' training colleges, while two others were studying as assistant teachers. By 1954 141 island students had been trained in New Zealand under the plan.*

EDUCATION IN CHILE: Chile is creating a permanent committee to study questions of adult education. The National Council for Education announced this decision following the visit to Chile of Dr. Fernando Romero, sent to Latin America by Unesco to survey adult education programmes. The Committee, composed of the Rector of the Technical University of Federico Santa Marie, a representative of factory management and one for the labour unions, is to prepare a comprehensive educational plan for adults.

★ **WORKSHOP FOR PEACE:** *The daily work of the United Nations Headquarters in New York provides the theme for a new UN film entitled "Workshop for Peace". The camera, roving through the buildings, provides a guided tour of the Headquarters, with forceful commentary, for people who are unable to join the thousands who visit it each day.*

FIGHTING DISEASE: Successful attacks on typhus, yaws, malaria and other diseases by co-operating teams of workers from the United Nations Children's Fund, the World Health Organization and governments have been reported recently. Last winter, teams of Afghan health workers dusted homes, mosques, public baths and horse-drawn hacks in Kabul with DDT. Not one case of typhus was reported there this spring. Only a few years ago louseborne typhus was epidemic in the area. In Haiti, 35,000 to 55,000 persons afflicted by yaws were treated monthly with penicillin. Almost 100,000 incapacitated persons have returned to work.

★ **WORLD'S NEEDY CHILDREN:** *In 1953, the United Nations Children's Fund (UNICEF) aided some 20,000,000 children and expectant or nursing mothers in some eighty countries. This year, UNICEF'S goal is even higher. . .to reach more than 25,000,000 children and mothers through mass health campaigns and long-range nutrition and maternal and child welfare programmes. Of the world's 900 million children, two-thirds are still without adequate food, clothing, shelter, sanitation or minimum medical protection.*

ASSSISTANT DIRECTOR-GENERAL OF UNESCO APPOINTED

M. René Maheu, of France, has been appointed Assistant Director-General of Unesco. The appointment was made in July 1954 by Dr. Luther Evans, Unesco's Director-General.

M. Maheu was born in 1905, at St. Gaudens, France. He graduated from the Ecole Normale Supérieure and taught philosophy at the University of Cologne (1931-33), at the French Institute in the United Kingdom (1933-39) and at the Franco-Moslem College at Moulay Idriss, Fez (1940-42). As a member of the civil cabinet of the Resident General of France at Rabbat, he was entrusted with various missions concerning the reform of Moroccan education.

He joined the Secretariat of Unesco in September 1946 as head of the Division of Free Flow of Information.

In December 1948, M. Jaime Torres Bodet, then Director-General of Unesco, appointed him Director of his office. In this capacity he has taken an active part in the preparation and coordination of the programme of Unesco.

CRIPPLED CHILDREN Gifts from voluntary groups in many countries have enabled the Children's Orthopaedic Hospital in Bombay to open an Occupational Therapy Department and to equip other departments of the hospital with much-needed material. The hospital's needs were made known through Unesco's Gift Coupon scheme, a voluntary aid plan through which a sort of international money order can be sent as a gift to educational, scientific or cultural institutions in other countries. Through the Unesco coupons it received, the Bombay hospital is now able to provide more effective treatment to hundreds of Indian crippled children.

★ **KOREAN TRAINING CENTRE:** *Unesco has sent Mr. Howard Hayden, a British educational expert, to Korea, where he is to be Director of a Fundamental Education Training and Research Centre. This Centre is a joint enterprise to be started by the United Nations Korean Relief Administration and Unesco. It will train teachers in fundamental education techniques, which would be applied in the educational campaigns in Korea. Mr. Hayden goes to Korea with a wide knowledge of educational problems in the Pacific, as well as British colonial territories. For the last year, he was Director of Education in Trinidad, and from 1946 to 1953 he held the same position at Fiji.*

LIVING AND LEARNING: A second international group of young men and women have begun training as fundamental education experts in an eight months' course sponsored by Unesco at Mysore, India. A similar Unesco study course ended there recently, graduating seventeen students to work as experts in the technical assistance programmes of the United Nations and the Specialized Agencies. The students who came from nine countries learned techniques, which ranged from how to make educational films and other teaching materials, to training local teachers for adult literacy campaigns. Like the first group, the second will live and work in the villages of Mysore, learning by practical experience to apply the teaching techniques developed by the Mysore State Adult Education Council. This organization has taught 300,000 illiterates to read in the past twelve years.

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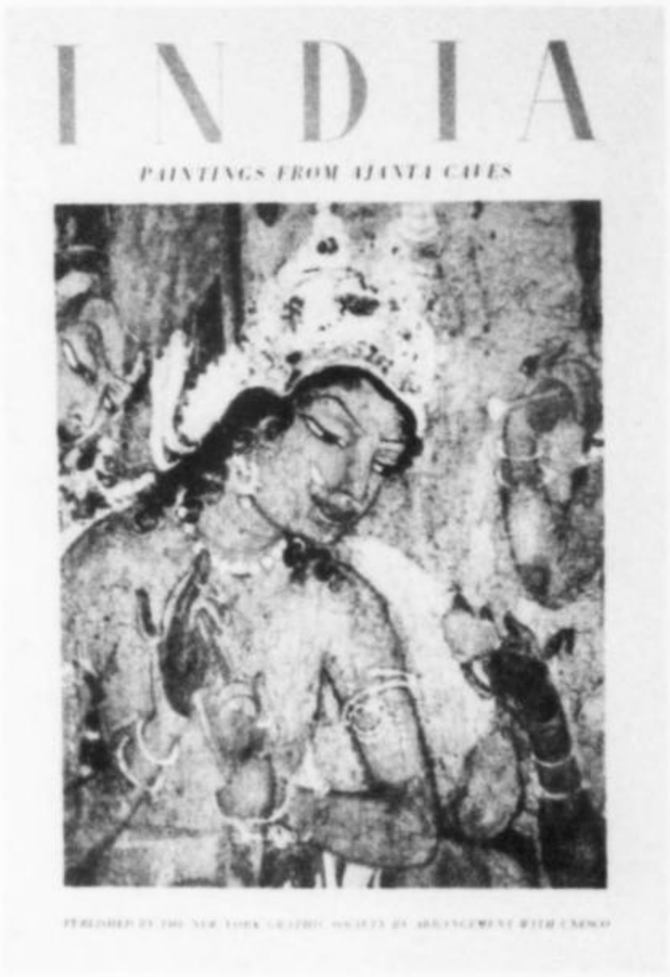

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The UNESCO Courier

THE BIGGEST SHOW IN THE UNIVERSE. — This photo of the June 30 eclipse of the sun was taken in Minneapolis in the United States, but scientists all the way from Nebraska to Jodhpur in India had their instruments trained on the blacked-out sun. None of them knew what might come out of their few minutes of observation — for anything could. Observations taken during the eclipse of 1919 helped substantiate Einstein's theory of relativity — and led to the splitting of the atom. See "In the Dark of the Sun" on page 40. (Photo by Roy Swan, Copyright Minneapolis Star).